Implementation Guidelines for Coordinated Agency Transportation Services

April 1980

REISSUED VERSION

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IMPLEMENTATION GUIDELINES FOR COORDINATED AGENCY TRANSPORTATION SERVICES

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INTRODUCTION

Implementation Guidelines for Coordinated Agency Transportation Services is the second volume of a two-part set on transportation coordination. The first volume, the *Planning Guidelines for Coordinated Agency Transportation Services* describes the initial steps in the overall development process and focuses on developing a feasible coordination approach in the local setting. These *Implementation Guidelines* describe the process by which such a conceptual plan is turned into an operating system.

Because coordination is a complex process, the amount of time and effort required for its success can vary widely. However, it does not need to be a difficult process, and the intent of this document is to provide tools and knowledge that will simplify local efforts. Accordingly, the guidelines focus on several key areas that have created difficulties in the past:

- Level-of-effort requirements
- Organizational and management arrangements
- System design components
- Budget preparation and financial planning
- Regulations and insurance

The *Planning Guidelines* concluded with the choice of a feasible coordination approach. The *Implementation Guidelines* begin at this point, by determining the level of effort needed to translate this approach into an operating system. Once the level of effort is determined and the authority for performing the implementation process delegated, the implementation process continues with the development of a system design and financial plan, the signing of agency contracts, and the hiring and training of staff. The implementation process ends with the first day of operations.

These guidelines are divided into seven chapters, which follow organizational and system design steps outlined in the flow diagram of Figure 1.

Chapter 1 describes the method for determining the level of effort needed for the implementation phase. The level of effort required is a function of the concepts to be implemented, the number of agencies participating, and the type of organization managing the system. As the complexity of these elements increases, the amount of effort also increases, as well as the resources required to develop the plan. A discussion of these resources includes considerations of in-kind services, grants, and funding sources, and how they can be used to maximize the implementation effort. The chapter concludes with a discussion of the strategies for choosing a director for the process, and his/her role vis-a-vis the organizational structure.

Chapter 2 describes the variety of organizations that could potentially run the coordination project, including local governmental bodies, human service agencies, public transit operators, private transit operators, and private nonprofit organizations formed specifically for this purpose. The relation of organizational structure to the type of coordination project being considered is discussed, as well as the pros and cons of each type of structure. Finally, examples of current operations are included from several sites around the nation.

In the third chapter, system design considerations are described for each of the coordination concepts. The discussion of design considerations in this chapter goes beyond that in the *Planning Guidelines,* and focuses on translating the conceptual plan into an operable entity.

Chapter 4 presents financial planning and management information considerations relevant to each coordination concept. These considerations include operating and capital resources, budget preparation, and billing and accountability.

The information contained in Chapters 1–4 should be sufficient for the planner/coordinator to complete most of the significant design work. Next, given approval by the policy/advisory board, the implementation manager can proceed through the final phases prior to start-up. Dealing with some essential details, Chapter 5 discusses the requirements for regulatory permits and insurances.

The development of contracts between the coordination agency and agency participants crucial to the final development of the system is described in Chapter 6. Sample contracts from a number of sites currently engaged in coordination efforts are presented to illustrate the requirements for an effective contract.

Once contracts have been signed, the project is ready to hire and train an operations staff, the final step in the implementation process prior to operations. Based on the staff requirements outlines in Chapters 3 and 4, Chapter 7 describes hiring considerations and includes job descriptions for each position commonly required.

The completed implementation plan will include the following elements:

- Organization and management approach
- System design
- Financial plan

- Management information system
- Coordination staff

Once operations begin, the implementation phase has ended. If the planning and implementation effort has been effective, the coordination operation will survive the typical difficulties of start-up and develop into a significant community resource.

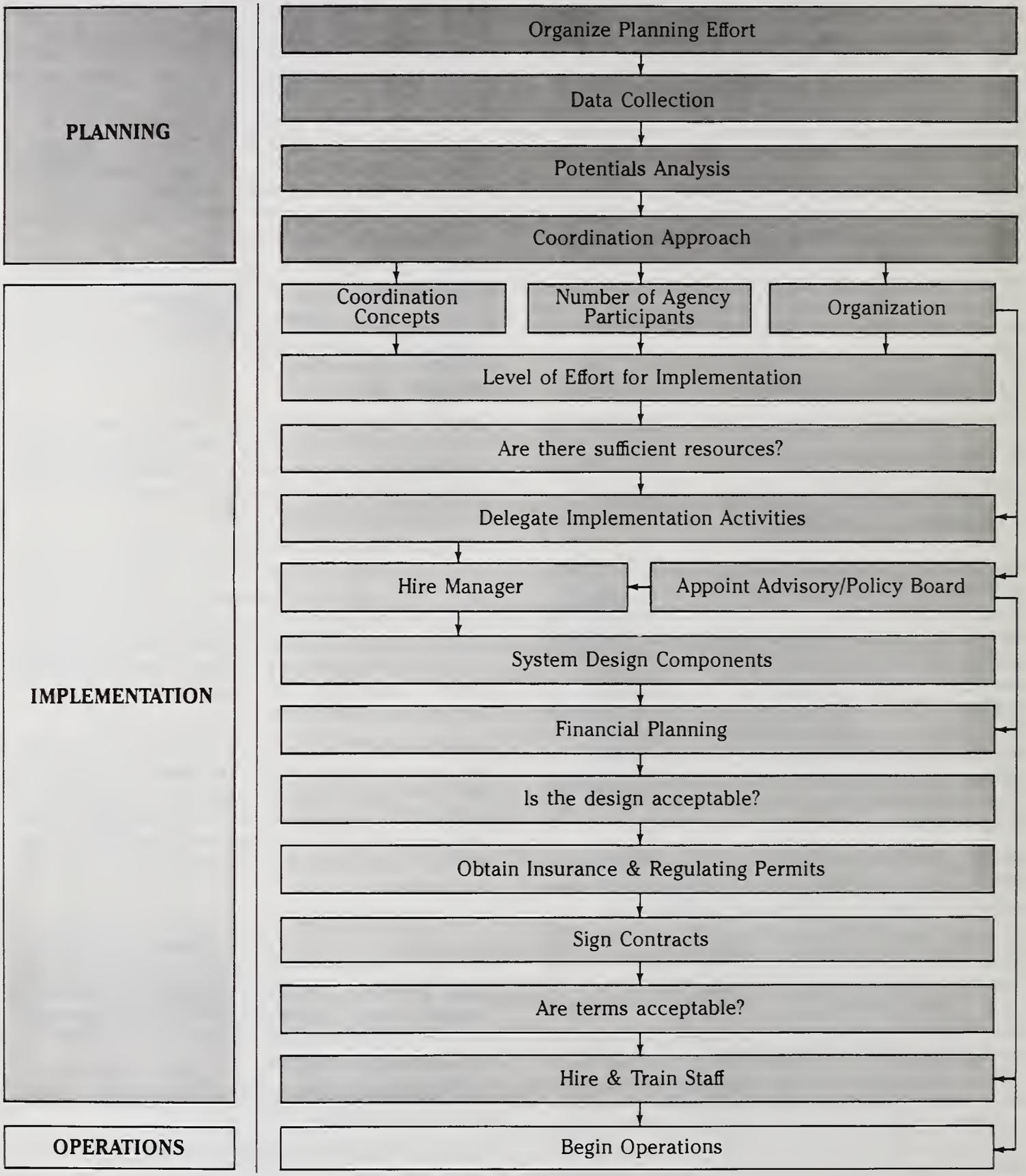


FIG 1. Overall Implementation Approach.

ORGANIZING THE IMPLEMENTATION EFFORT

The *Planning Guidelines* describes the methods used to choose a coordination approach. Therefore, at this point in the development of a local coordination program—the outset of the implementation process—local coordination options and expected participant agencies have been identified.

In order for coordination to be developed from a concept through implementation into operations, participating agencies must be made aware of the work effort required. Thus, at the outset of the implementation process, three crucial questions must be addressed: (1) What is the level of effort required during the implementation period? (2) How will the implementation effort be supervised and organized? (3) Who will perform the implementation work?

Agencies will normally want answers to these questions before they will commit any of their physical, personnel, or financial resources to the implementation process. The key to obtaining preliminary commitments from agencies is to define the level of effort required, the nature of the supervision, and the individuals responsible for completing the implementation effort. This information will enable agencies to fully understand what is expected of them during this process and to assess their levels of commitment.

LEVEL OF EFFORT

Figure 2 outlines the general process for determining the level of effort. The process is segmented into two parts:

> The estimated effort (person-weeks) it will take to complete all implementation tasks
>
> The assignment of responsibilities for all implementation activities

The implementation time period varies in length as a direct function of three variables: the tasks entailed in the coordination concept, the organizational structure, and the number of participating agencies.

The *coordination concept* chosen will greatly influence the implementation time period. Some concepts, such as information referral and joint purchasing, are relatively simple to implement, requiring a minimum of new procedures and agreements (i.e., *tasks).* At the other end of the spectrum, total coordination requires a large number of new arrangements, stemming from the exchange of responsibilities and the need for carefully developed billing and accountability systems. Thus, each concept implies a particular level of effort, independent of other considerations.

The development of an *organizational structure* will greatly affect the time required for implementation. If a new organization is required, the level of effort will be significantly increased, to allow for the development of broad policies, permits, management plans, etc. However, if an existing operator is used—whether a transit authority, human service agency, or local governmental body—most of these program aspects will already be in place, and the work effort will be proportionally less. (A complete discussion of organizational structures is presented in Chapter 2.)

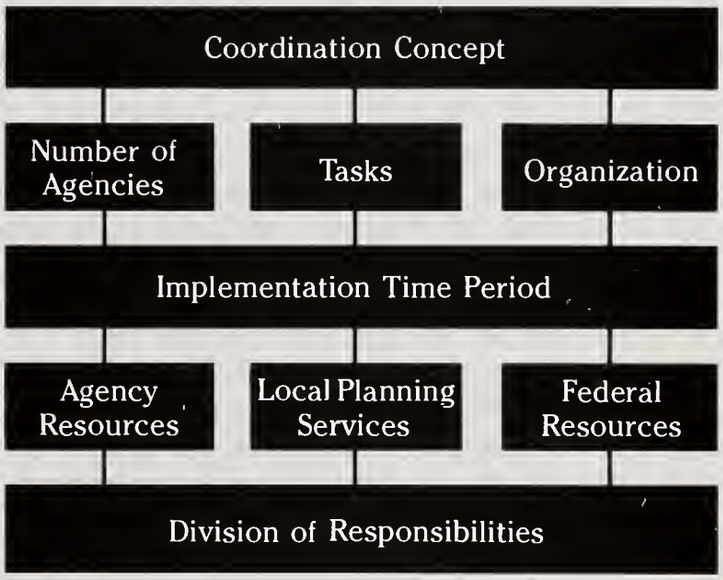


FIG 2. Determinants for Level of Effort.

The third variable in the level of effort is the number of agencies involved, either as purchasers or providers. As the number increases, there will be a corresponding increase in the amount of work involved in coordinating services, in developing procedures, and in negotiating agreements.

The relationship of these three determinants is shown in Figure 3. Each cell in the table indicates the estimated person-weeks required to complete the implementation program for a selected coordination concept. As shown, the level of effort increases as the complexity of the concept increases, as the number of participants increases, and if a new organization is required. Thus, the maximum effort required is for total coordination under the operation

NEW ORGANIZATION												EXISTING ORGANIZATION										
Number of Agencies												Number of Agencies										
2	4	6	8	10	12	14	16	18	20	22		2	4	6	8	10	12	14	16	18	20	22
10	12	14	16	18	20	24	28	32	36	40	Total Coordination	4	6	8	10	12	16	20	24	28	32	32
6	7	8	9	10	11	12	14	16	18	20	Central Dispatching	2	3	4	5	6	8	10	12	14	16	16
6	6	7	8	8	9	10	10	11	12	12	Total Maintenance	2	3	3	4	4	5	5	6	8	8	8
4	4	4	4	6	6	6	6	8	8	8	Operations Clearinghouse	2	2	3	3	4	5	5	5	6	6	6
4	4	4	4	6	6	6	6	8	8	8	Joint Maintenance	2	2	3	3	4	4	4	5	5	6	6
—	—	—	—	—	—	—	—	—	—	—	Management	2	2	3	3	4	4	4	5	5	6	6
—	—	—	—	—	—	—	—	—	—	—	Information and Referral	1	2	2	3	3	3	4	4	4	4	4
—	—	—	—	—	—	—	—	—	—	—	Central Storage	1	2	2	3	3	3	4	4	4	4	4
—	—	—	—	—	—	—	—	—	—	—	Parts Purchasing	1	1	1	2	3	3	3	4	4	4	4
—	—	—	—	—	—	—	—	—	—	—	Major Purchasing	1	1	1	2	3	3	3	4	4	4	4
—	—	—	—	—	—	—	—	—	—	—	Training	1	1	1	2	2	2	3	3	4	4	4

FIG 3. Determining the Level of Effort For the Implementation Process (Numbers in Person-Weeks).

of a new organization with a large number of participants.*

Once the implementation time period has been determined, agencies can assign responsibilities for the implementation activities, indicated in the lower half of Figure 2. The assigning of responsibilities will depend on what resources (either in-kind services or cash) are available and who is available to do the work.

In-kind services from each participant can add up to substantial amounts. Such services may include donated staff time (the crucial element) and typewriters, office space, telephones, or any other equipment essential to the implementation effort. Relying only upon donated services can be a problem, however, if these resources are scattered among a number of participants, or if the assigned personnel do not possess the level of technical expertise required. In general, the implementation effort will require at least one person with a solid technical background and sufficient available time to provide major input and direction.

To obtain the services of a single individual to direct the implementation effort, local participants will probably have to come up with sufficient funds to either hire a manager or to purchase technical assistance on a consultant basis. Funds for these can come from several sources:

- *Participating agency funds:* Agency funding sources can often be used for the planning of services for their client populations.
- *Contributions:* Contributions from charitable agencies, such as the United Way, can be used to back the implementation process.
- *Local government funds:* Local or county officials can often be persuaded to participate in the effort by providing tax dollars to the effort. These funds may also be available through government-sponsored human service agencies.
- *State, regional, and federal funds for general planning or transportation:* A wide range of federal and state agencies provide money for planning studies. Among the best sources to investigate would be UMTA Section 8 or 18 funds disbursed through either the metropolitan planning organization or state transportation assistance programs; Community Development Block Grants; Housing and Urban Development 701 funds sponsored by local or regional comprehensive planning organizations; Economic Development Administration funds; Appalachian Grant funds; or regional transportation authority monies.†

* The numbers are not additive. For example, implementing both information and referral and an operations clearinghouse using an existing organization will not necessarily take three weeks, since many other activities related to administration and management will not have to be duplicated.

†See GAO report CED-77-119, *Hindrances to Coordinating Transportation of People Participating in Federally Funded Grant Programs* Appendix II, "Inventory of Federal Programs that Provide Transportation for People," October 17, 1977.

An estimate can be made of these resources, and from this estimate a plan developed for completing the work. The availability of cash and the timing of donations will provide local participants with an idea of the time frame in which they will be working. It will also help determine whether a position can be developed for a local planner, or whether a study can be funded and outside professional aid enlisted.

Once the level of effort and time frame for the implementation effort is determined, the local participants will be ready to embark upon the actual implementation program.

DIRECTING THE IMPLEMENTATION PROCESS

As outlined above, the process for determining the level of effort and division of responsibilities during implementation is based on the determination of three key elements: who will take part (number of agencies), what will be done (tasks of the coordination concept), and how will it be organized (organizational structure). With regard to the division of responsibilities to carry out the process, a centralized approach is, for the most part, more effective for carrying out the number of implementation tasks required.

It is generally desirable to have one person in charge of the implementation process. This person would probably not do all of the work but would have authority to delegate responsibilities and would monitor the work effort to see that all activities are completed in a timely manner.

The Review Committee

In addition to designating an individual as the person in charge, the participating agencies should establish a review committee to guide and advise on the progress of the implementation process.

The establishment of the review committee will be guided by the complexity of the coordination concept. As concepts and activities become more complex, the need for a review committee increases. For those concepts that are simple and require less than four months to implement (e.g., information and referral, purchasing), a review committee might not be necessary.

The review committee should be established at the start of the implementation process, during the level-of-effort determination. The committee should be comprised of members of each agency, or a group of individuals designated by the agencies. The primary goals of this committee will be to review the progress of the implementation process and guide the implementation manager in this effort. The committee should also be in a position to evaluate the status of the implementation and determine whether it is feasible to continue with the effort or not. The review committee should take an active role in the following implementation areas:

- Assessment of implementation resources (funds, equipment, personnel)
- The decision to hire outside assistance
- Development of the coordination organization structure
- Operations design and financial plan
- Agency contracts
- Staffing

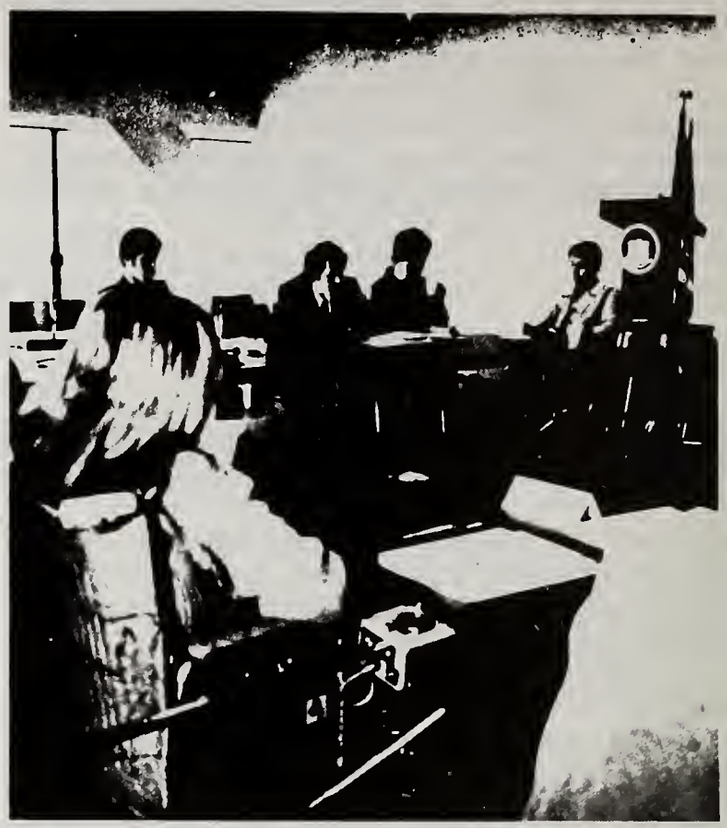
In all these areas, the committee would simply review and modify or approve the plans presented by the individual responsible for developing the concept. Once the program is operational, the committee should continue to function to review and evaluate the implementation program and subsequent operations.

The Implementation Manager

The manager designated to carry out the implementation, and his/her responsibilities, will depend to a great extent upon two factors: the level of coordination being sought (including organization structure), and the source of implementation funds. Where coordination is uncomplicated, involving simple concepts and a limited number of agencies, the implementation process may also be simple. In such a case, the little work involved in the implementation process could be carried out by current employees of a provider agency. The employee chosen would most likely be the person who would later manage the coordination operations.

Where the complexities of the coordination plan entail more effort in the implementation phase, a full-

time position may be required. This is especially true if a new organization is being formed. In this case, thought should be given to hiring an individual who can both direct the implementation process and manage the coordination project once it is underway.



Implications of the Funding Source

Funding for the implementation process is also a factor in the management of the implementation process. If the funding for the process is largely through in-kind services, with little cash, then the process itself will have to be divided among the participants with no single, central implementation manager. If, on the other hand, funds are centralized, it is more likely that the direction of the implementation process could be centralized in a single individual or agency. These are two key decisions that the review committee must make at the initiation of the implementation process.

Publication	Address	Emphasis
County News	National Association of Counties (NACo) 1735 New York Ave., N.W. Washington, D.C. 20006	General public services administration in rural areas (membership circulation)
Mass Transit	538 National Press Building Washington, D.C. 20045 (202) 638-0330	Urban and suburban transit systems administration and policy
Metropolitan (Metro)	Bobit Publishing Company 2500 Artesia Boulevard Redondo Beach, CA 90287 (213) 376-8788	Urban and rural transit equipment and operations management
News and Views	American Society for Public Administration (ASPA) 1225 Connecticut Ave., N.W. Washington, D.C. 20036	General public administration, academics, and current events (membership circulation)
Newsletter	International City Managers' Association (ICMA) 114 Connecticut Ave., N.W. Washington, D.C. 20036	Management of general public operations in large and small cities (membership circulation)
Passenger Transport	American Public Transit Association (APTA) 1225 Connecticut Ave., NW Washington, D.C. 20036 (202) 828-2870	Comprehensive public transportation management (membership circulation)

FIG 4. Professional Periodicals in Public Transportation/Administration.

WHO WOULD MAKE A GOOD MANAGER?

The manager for the implementation process—and presumably for the project operations, as well—may come from a local agency, local government, local transit operator, or outside the locality. The skills that such a person must bring to the job are more important than his or her current place of employment. These skills include demonstrated abilities in the following areas:

- Management
- Human service agency relations
- Operation or planning of transportation services, especially for agencies or paratransit operations
- Dealing with local governments
- Grant writing, fund raising, public relations

These skills comprise an ideal list of characteristics for the position of implementation and operations manager. Again, depending upon the degree of coordination being considered, some of these skills may be less important than others. But in all cases, the success of a coordination project is directly related to the selection of a good manager, whether this person be full- or part-time, newly hired or already employed by a participating agency.

HOW DOES ONE HIRE A COORDINATION PROJECT MANAGER?

In hiring a coordination project manager, the review committee must first meet and discuss the responsibilities for the position. This can occur only after determination of the organizational arrangement, which will provide the specific requirements for the position. However, the manager should usually be hired at a point at which he/she can contribute to the organization's formation.

In some cases, the manager will simply be a contract officer, arranging agreements between purchaser and provider and monitoring the work carried out under such arrangements. In other cases, the manager will be responsible for setting up the new organization, determining all operating procedures, negotiating contracts and permits, hiring and training staff, and setting up all billing and accountability services. Obviously, these are two extremes, but they do indicate the wide range of responsibilities possible for the position of implementation/operations manager. These responsibilities will also help determine whether the position will be a full-time or part-time job, and thus whether it can be filled by a current agency employee or requires hiring a new person.

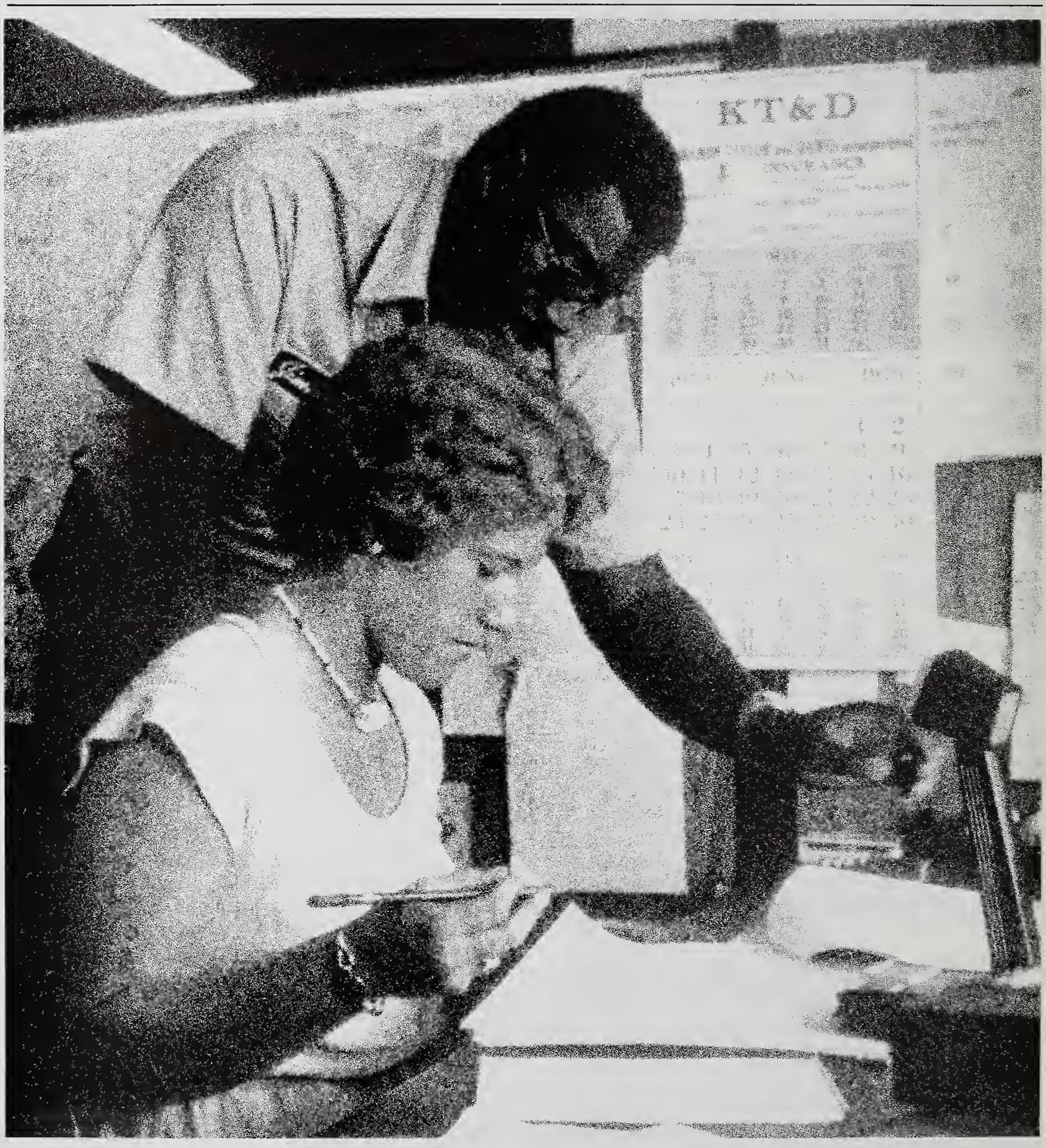
Once the responsibilities are determined, the review committee can draw up a job description containing the required qualifications and duties of the job, as well as the salary level. (Sample job descriptions for the position of executive director and transportation manager are shown in Appendix A.) The job description will make clear whether it is possible for a present agency employee to assume the managing tasks as part of his/her present job. If it appears necessary to hire a new person, recruitment is the next step.

Using the job description as a basis, advertisements should be placed in several publications. Besides local publications, there are several national publications in the area of transportation, planning, and public administration that might be used to elicit a greater range of qualified candidates (Fig 4).

The review committee (see above) or the board of a new agency then meets to select a candidate. This process will probably consist of the selection of three to four top candidates, who will be interviewed by the committee prior to the final selection.

Once the selection process is complete, the coordination project will have an individual to whom it can delegate the responsibility for implementing the program. While this person will be ultimately responsible for the completion of each step, cooperation will be expected from each participant in completing the process.

MANAGING THE COORDINATION PROJECT



As indicated in Chapter 1, the organizational structure selected to manage the coordination project is a crucial factor in the implementation process. The two main variables involved in selecting the organizational structure are as follows: (1) The type of organization required by the participants; (2) The type of internal management procedures required to direct the activities of the project.

Coordination implies reorganization and the shifting of responsibilities for carrying out agency transportation services. Accordingly, the participants in a coordination project are required to assume new roles and enter into new arrangements so that the overall coordination project can operate effectively. How these roles are determined, what management structures are required, and how these structures should be constituted are the subjects of this chapter.

GENERAL COORDINATION ARRANGEMENTS

It is not always necessary to develop a complex management structure for a coordination project. That is, participants do not always have to think in terms of new organizations, policy boards, and rules and by-laws. In the simplest coordination projects, in which activities are limited, arrangements may consist only of a simple letter of contract for services. As a general rule, programs based on discrete, separable elements (coordination activities such as operations clearinghouses or central dispatching, contract maintenance services or purchasing, and information and referral and major purchasing) can often avoid the complexities of reorganization by using simple contractual arrangements for the coordinated services. Any of these approaches to coordination may be feasible through a simple contract between purchaser and provider. The contract gives the terms of the agreement, which provides the necessary management direction for the project.

Other coordination activities are more complex and may require formal arrangements between the participants. Total coordination, because it gives complete control of all participants' vehicles to one provider, requires a formal policy direction from the purchaser agencies.

A new organization with policy responsibilities is usually necessary when the activities to be coordinated are complex, when there is no existing single provider capable of running the system, or when there is a large number of participants. In this case, a new organization may be formed, with the participating agencies forming a policy board to direct the project through a project manager.

An existing organization—human service agency, transit authority, local government—can effectively run the service if it has the existing capabilities (or can easily expand), by entering into contractual arrangements with the purchaser agencies. With simple concepts and few organizations, these arrangements can be made on a one-to-one basis. However, as the level of participation increases, or as the number of services grows, it may become necessary to develop a policy/advisory board mechanism to monitor the contractual arrangements.

As indicated above, these determinations must be made at the outset of the project, through mutual agreement of the participants, and should be re-evaluated during the implementation process for consistency with the concept design.

TYPES OF ORGANIZATIONS

What are the types of organizations that can run a local coordination program? And what are the advantages and disadvantages of each? These are the next considerations in deciding on an organizational structure.

Generally speaking, the choices are as follows:

- An existing human service agency provider
- A newly formed special transportation agency
- A transportation operator—public or private
- A government agency

The selection of an appropriate organization can help ensure the success of the project. It is important to select an organization that is suitable to local conditions, is acceptable to all participants, and can respond to the varied needs of the participants. Finally, the organization selected must be perceived as impartial. In many cases, human service agencies do not perceive other social program agencies as being impartial and fear that management of a program by such an agency would affect the quality of services. For this reason, the transit authority is often a popular choice. However, many agencies may view the transit authority negatively, as being unresponsive to client needs. Therefore, all avenues must be fully examined and assessed before a final choice is made.

The options to be considered as organizations to run a transportation coordination program are discussed below, followed by a checklist of considerations to be used in evaluating those options.

Existing Human Service Provider Agency

An existing agency may be the quickest and easiest choice for a coordination organization. If such an agency already operates transportation services, start-up delays can potentially be avoided. With simple coordination concepts such as information and referral, an existing agency is probably the best choice, especially if the agency has good relations with other local organizations.

One major problem often perceived with such arrangements is that transportation will continue to be vested in an agency that is primarily mandated to provide nontransportation services and that lacks substantial transportation expertise. Other potential problems include interagency friction and fears on the part of some agencies that their own client groups will not be served adequately.

Newly Formed Special Transportation Agency

Often, there is no existing agency suitable to operate a coordination project, due to the lack of expertise, mandate, or desire. The solution may be a new, special-purpose transportation agency.

New agencies are usually formed as private nonprofit (PNP) corporations. A PNP is quite easy to set up and can be chartered for any specific purpose. The steps required to incorporate vary in each state; however, the Secretary of State should be able to provide information on establishing a PNP. Local legal assistance can also be sought. The major disadvantage of a PNP is that the required board of directors may not be responsive to local governments or to purchasing/funding agencies.

The major disadvantages of forming a new organization are start-up time and costs. If the local area is large or the coordination complex, it may take substantial resources to start a new organization. However, in a rural area that is just beginning to develop public transportation services, it may be feasible for a new organization to both develop transportation services and carry out coordination.

Transportation Operator

The third option, as a coordination organization, is a public transit operator, which offers the advantages of nonaffiliation and access to UMTA funds. However, public transit operators often have high operating costs and little experience with special needs clients.

Recent Department of Transportation (DOT) regulations have mandated that all public mass transit facilities become accessible to the handicapped. This change will apparently involve the addition of wheelchair lifts to buses and elevators to rapid transit systems, although it will not eliminate the need for agency transportation. The new regulations encourage transit operators to support coordination with other services but do not require the expenditure of funds for these purposes.

Government Agency

Finally, cities, counties, or other governmental units may be chosen to direct coordination systems. These units of government often have expertise in human services and are not affiliated with any single client group. Significant barriers to this choice may be jurisdictional boundaries on trip-making.

Considerations in Choosing a Coordination Organization

In choosing an organization to coordinate the local transportation program, implementation planners should be aware of the characteristics inherent in any number of potential arrangements. The following is a checklist of important factors to be considered for each potential arrangement:

- Experience with agency services and programs
- Experience with special client transportation needs
- Service area restrictions
- Identification of providers with special categorical needs
- Eligibility for UMTA funding
- Special work rules (prohibitions on part-time workers, split shifts, etc., that would affect the operating plan)
- Facilities in place (availability of adequate working space that would reduce need for new facilities)
- Provider regulatory requirements (any statutory prohibitions on who can be carried, where service can be provided, or what changes are permissible)

INTERNAL MANAGEMENT STRUCTURE

The internal management structure for a coordinating project should follow in general form the structures shown in Figures 5 and 6. The effective policymaking body for the project will be a new advisory board, which must represent the interests of participating agencies, funding agencies, local governments, and consumers. If the board is large, it may require an executive committee to provide greater day-to-day direction.

If an existing organization is used, then the internal management will be directed by the current staff of the provider agency, using existing management policies (refer to Figure 6). If the existing organization does not have a policy board, it is advisable to establish one, in order to provide a level of accountability beyond the primary contractual arrangements.

The internal management of the project, under either alternative, will require that periodic meetings and reports be available for participant agencies. Mechanisms for reviewing operations, feasibility, operating statistics, costs, and policy decisions should be contained in the structure so that agencies can review the status of the project and suggest changes that may improve the plan.

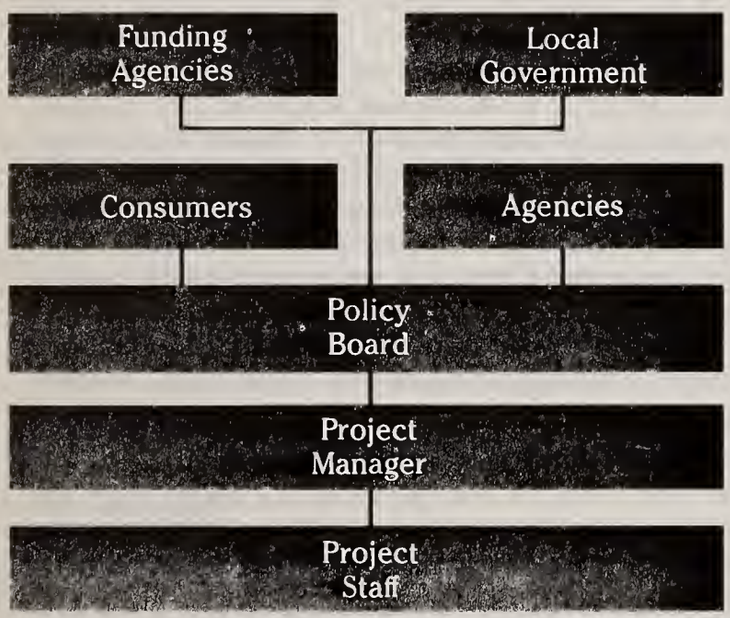


FIG 5. Management Structure: New Coordination Organization.

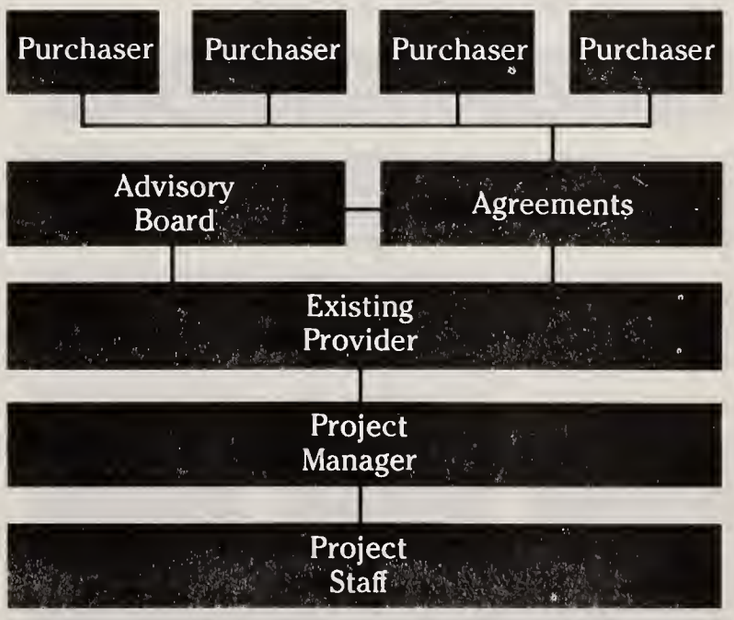


FIG 6. Management Structure: Coordination Under an Existing Operator.

HEW/HDS
COORDINATED TRANSPORTATION DEMONSTRATION PROGRAM

URTA—Howard County, Maryland
HEW/HDS Demonstration Project
Private Nonprofit Agency Consortium

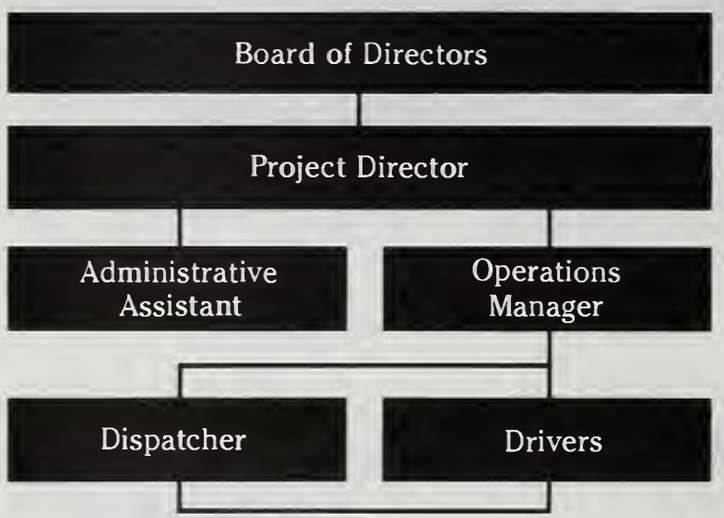


FIG 7. Organizational Structure for URTA.

The Office of Human Development Services of the U.S. Department of Health, Education and Welfare (HEW/HDS) has sponsored transportation demonstration programs in five locations. The purpose of the demonstration program is to determine the impacts of coordinating human service agency transportation. Each of the five sites has implemented a different type of coordinated system, ranging from an operations clearinghouse in Northwest Arkansas to total coordination in Howard County, Maryland.

RIDE, INC.—Jacksonville, Florida
HEW/HDS Demonstration Project

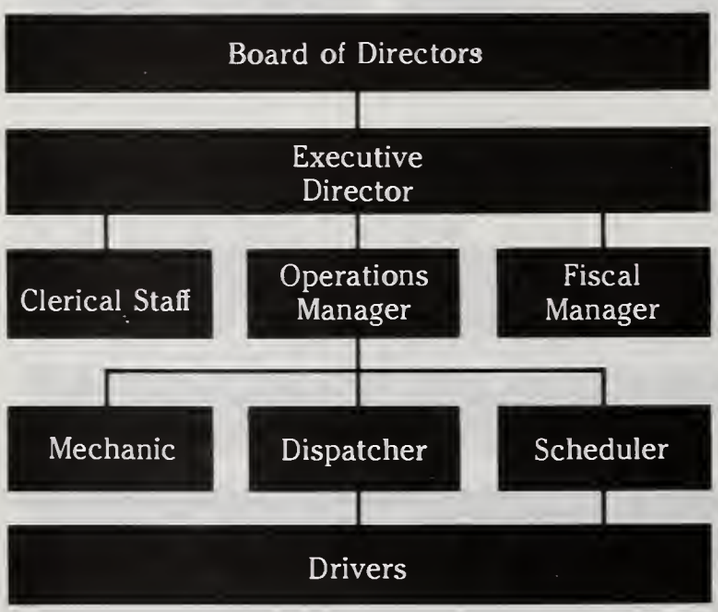


FIG 8. Organizational Structure for RIDE, Inc.

Figures 7 through 11 illustrate the organizational structures of the five HEW/HDS demonstration projects (1978–79).

The organizational structure of the Urban and Rural Transportation Alliance (URTA), in Howard County, Maryland (Figure 7), is very basic, consisting of a project director, operations manager, administrative assistant, dispatcher, and drivers. Since URTA is a newly formed nonprofit project, its staff must perform all necessary functions related to its operation. (Consequently, the project director, operations manager, and administrative assistant must be flexible and willing to perform tasks that are not normally their responsibility. For example, on occasion, the operations manager may have to drive vehicles or perform minor vehicle repairs.)

Figure 8 illustrates the organizational structure developed in Jacksonville, Florida, where RIDE, Inc., was formed as a nonprofit transportation consortium providing total coordination services. RIDE, Inc., managed a large transportation operation and as a result required a secretary, clerk, dispatcher, scheduler, and mechanic in addition to an executive director, operations manager, and fiscal manager. This staff was used to manage and direct the daily activities of 26 full-time drivers and 14 part-time drivers, as well as account for all project billing and revenues.

The organizational structure for Project RESPOND is presented in Figure 9. Project RESPOND manages an operations clearinghouse for human service agency transportation in Northwest Arkansas. The demonstration is operated through a consortium of community action agencies called the Community Resource Group, Inc. Since Project RESPOND acts only as an intermediary, its staff is limited to three persons: a project director, a project coordinator, and a secretary. Project RESPOND does not operate vehicles and therefore, does not employ dispatchers or drivers, although an expansion of service is planned.

Figure 10 depicts the organizational structure used for METROVAN, a project operated by the Grand Rapids Area Transit Authority (GRATA). METROVAN operated under the direct supervision of the small bus operations manager, who was responsible to the GRATA operations manager. Because METROVAN was completely integrated into the GRATA system, METROVAN was able to share the GRATA facilities, equipment, and clerical staff.

The coordinator was employed full time by the demonstration project, while the research assistant was employed by the project for only 50 percent of his time. The two dispatchers served both components of the small bus program. Part of the cost of the dispatchers was supported by the demonstration project, while the balance was supported by general GRATA funds.

GRATA also employed a set of call takers. These persons handled all incoming GRATA calls, including questions about line haul service and requests for METROVAN service. The call takers were supported by GRATA funds.

The organizational structure for the Westchester County Transportation Project (WCTP) is presented

RESPOND—Northwest Arkansas HEW/HDS Demonstration Project Consortium of CAP Agencies

FIG 9. Organizational Structure for Project RESPOND.

METROVAN—Grand Rapids Area Transit Authority HEW/HDS Demonstration Project

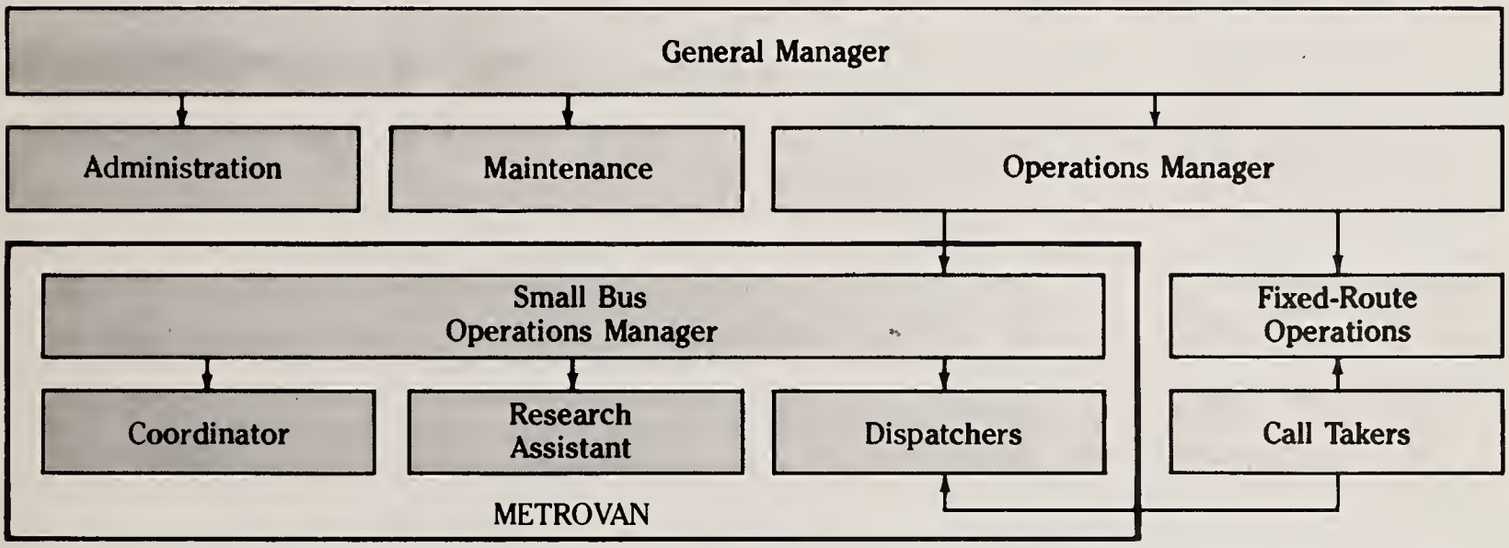


FIG 10. Organizational Structure for METROVAN.

in Figure 11. WCTP operated as a totally coordinated transportation program from within a human service agency. The staff for the project consisted of a project director, an assistant project director, and a secretary. A private accountant worked on the project for several hours each week, or approximately 10 percent of his time. Since the WCTP provided only fixed-route service, there was no dispatcher, and the six drivers worked directly under the director and the assistant coordinator. This straightforward organizational structure is similar to that of Project RESPOND in Northwest Arkansas.

Summary

The preceding descriptions of the HEW/HDS demonstration projects point up several similarities among the organizational structures and indicate that the size of the organizational structure is a function of

WCTP—Westchester County, New York HEW/HDS Demonstration Project

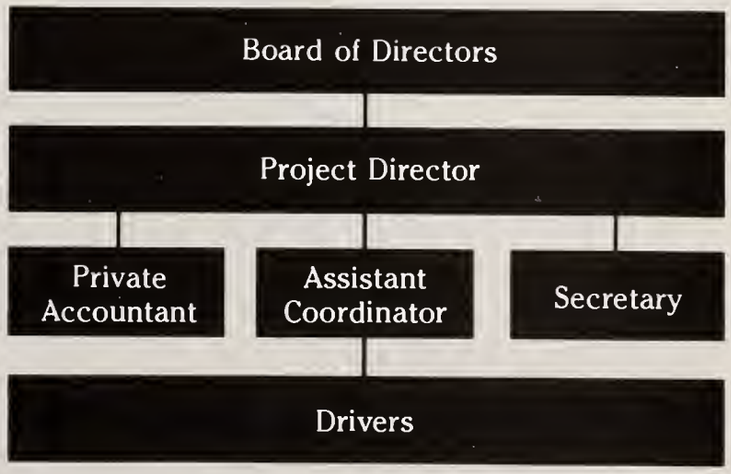
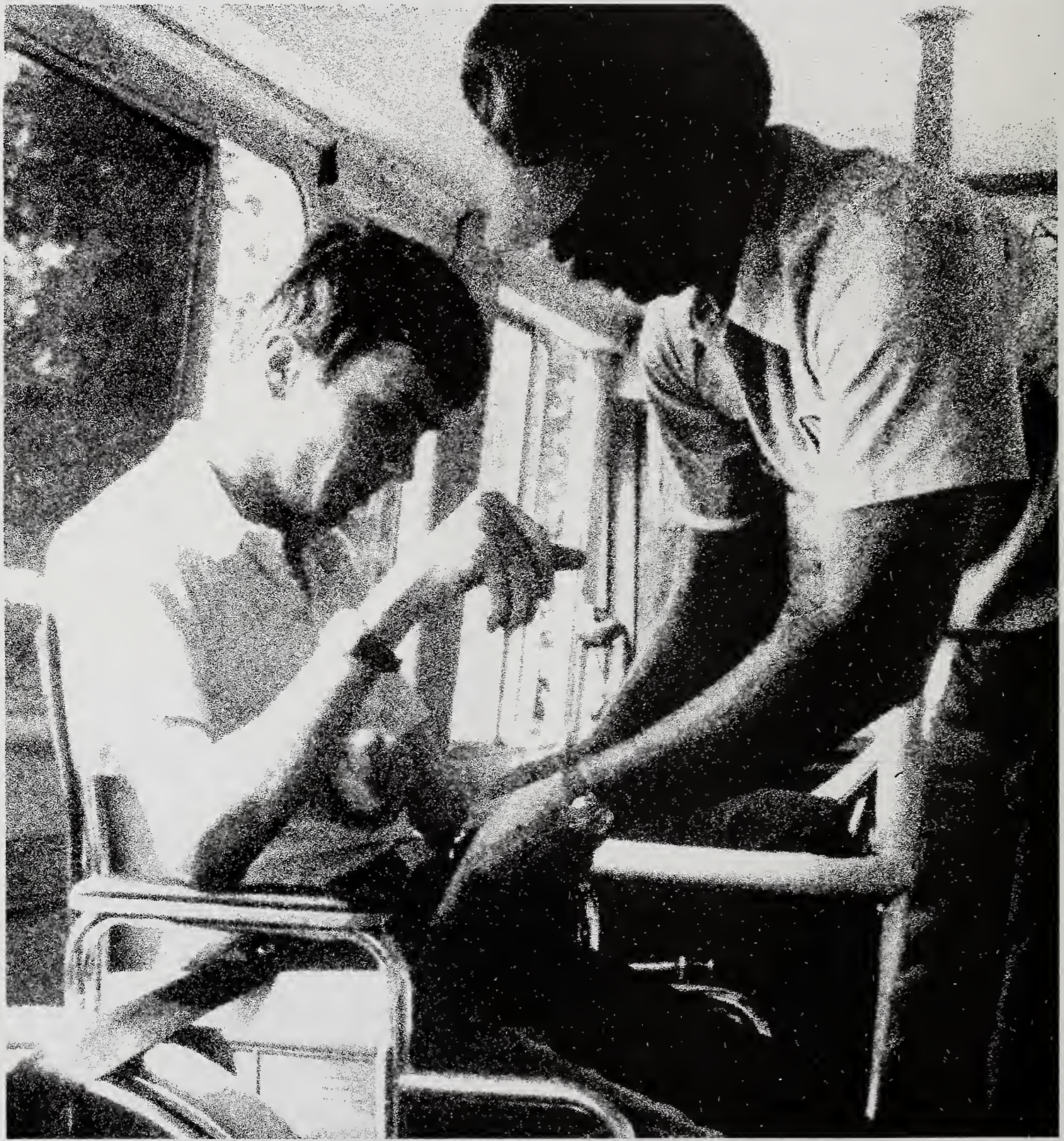


FIG 11. Organizational Structure For WCTP.

the total operating budget, the type of service provided, and the location of the organization (e.g., within a government agency, within the regional transit authority, or separate, as a private nonprofit corporation). In general, the organizational structure of the project is limited to four or five key individuals; an executive director and assistant executive director, an operating manager, a transportation manager, plus support personnel (dispatchers, mechanics, drivers, secretaries, etc.) There is usually one person responsible for project development and administration and a second person responsible for daily operations. The support personnel for each organization report to the project manager.

Systems that operate within a larger agency, governmental body, or regional transit authority can often reduce total costs by sharing overhead expenses and/or paying for a portion of the salaries of clerical staff. Systems that choose to operate independently, as private nonprofit corporations, usually cannot share their expenses with any other organizations. Such systems must be careful not to overstaff, since the bulk of their budget must be devoted to operations. On the other hand, private nonprofit corporations usually do not have to deal with the bureaucracy of large agencies.

SERVICE DESIGN



The major purpose of the service design effort is to translate the feasibility study results from the *Planning Guidelines* into a working operation. This effort consists of identifying and planning those activities and procedures that are required to provide effective daily operation of the chosen coordination approach. Special design components are required by the following coordination concepts: operations clearinghouse, central dispatching, coordinated maintenance, information and referral, and total coordination. The remaining coordination approaches—coordinated purchasing, vehicle storage, training, and management—require very little added design work to translate the analysis of the feasibility study into action. The primary tasks for these approaches will consist of negotiating agreements to undertake the coordination programs already described in the *Planning Guidelines.*

The daily procedures consist of those activities necessary to run each of the coordination approaches according to the descriptions provided in the *Planning Guidelines.* These procedures will be developed by the implementation manager, with support from any staff or outside assistance designated to work on the implementation phase. The manager should be entirely familiar with both the range of agency services currently being provided and the concept inherent in the coordination plan. He/she should also review the materials from the planning study—services, budgets, policies. The final design should be:

- Specific enough to show how each agency will receive required services, how these services will be provided, and how the service will compare to existing services
- Flexible enough to adjust for problems, uncontrolable factors, and changes in the agency's need for transportation

The operating plan should be developed on an incremental, agency-by-agency basis, fitting each participant into the total plan. This requires that the implementation manager meet often with the agencies until their mutual programs and needs are thoroughly understood. Subsequent to these meetings, a plan of the coordinated program can be prepared. This plan will include:

- The types of service to be provided
- The levels of service to be provided
- A schedule of services to be implemented
- The estimated number of vehicle hours to be provided, if vehicle coordination is involved
- The utilization of any private firms, such as taxis, wheelchair service providers, or service garages, and the duties required for each
- Schedules for service delivery, dispatching procedures for vehicle operations, maintenance procedures; or administrative responsibilities as applicable.

Using these plan elements as a base, the implementation manager can draw up a system plan showing each participant's role, responsibility, and benefits from coordination. This design plan will be the basis for determining the capital equipment needs of the project and the overall financial plan.

Daily procedures are discussed below, under the five coordination approaches set forth in the *Planning Guidelines:* operations clearinghouse, central dispatching, maintenance coordination, administrative coordination, and total coordination. Although these procedures are discussed separately, they can be implemented together in the final service plan.

OPERATIONS CLEARINGHOUSE

The operations clearinghouse provides additional trips through the coordination of unmet trip needs and excess vehicle time or capacity, using ride-sharing and time-sharing techniques.

Most agencies provide transportation service to a regular set of clients on either a subscription or an advance-notice basis, whereby trip requests are made before the day of the trip. This kind of service involves prior routing and scheduling of agency vehicles and can be classified as fixed-route service, in most cases. With lists of agency routes and schedules, an operations clearinghouse can determine where excess capacity or unutilized time can be used by those agencies who wish to purchase client trips and can match the resources to the needs of these purchasers. As a result, the vehicles are more intensively utilized, and more trips are provided for the clients of the coordinated programs.

Immediate-notice systems, on the other hand, cannot provide advance scheduling information to an operations clearinghouse. As a result, such services are difficult to accommodate, requiring the more direct central dispatching technique described below.

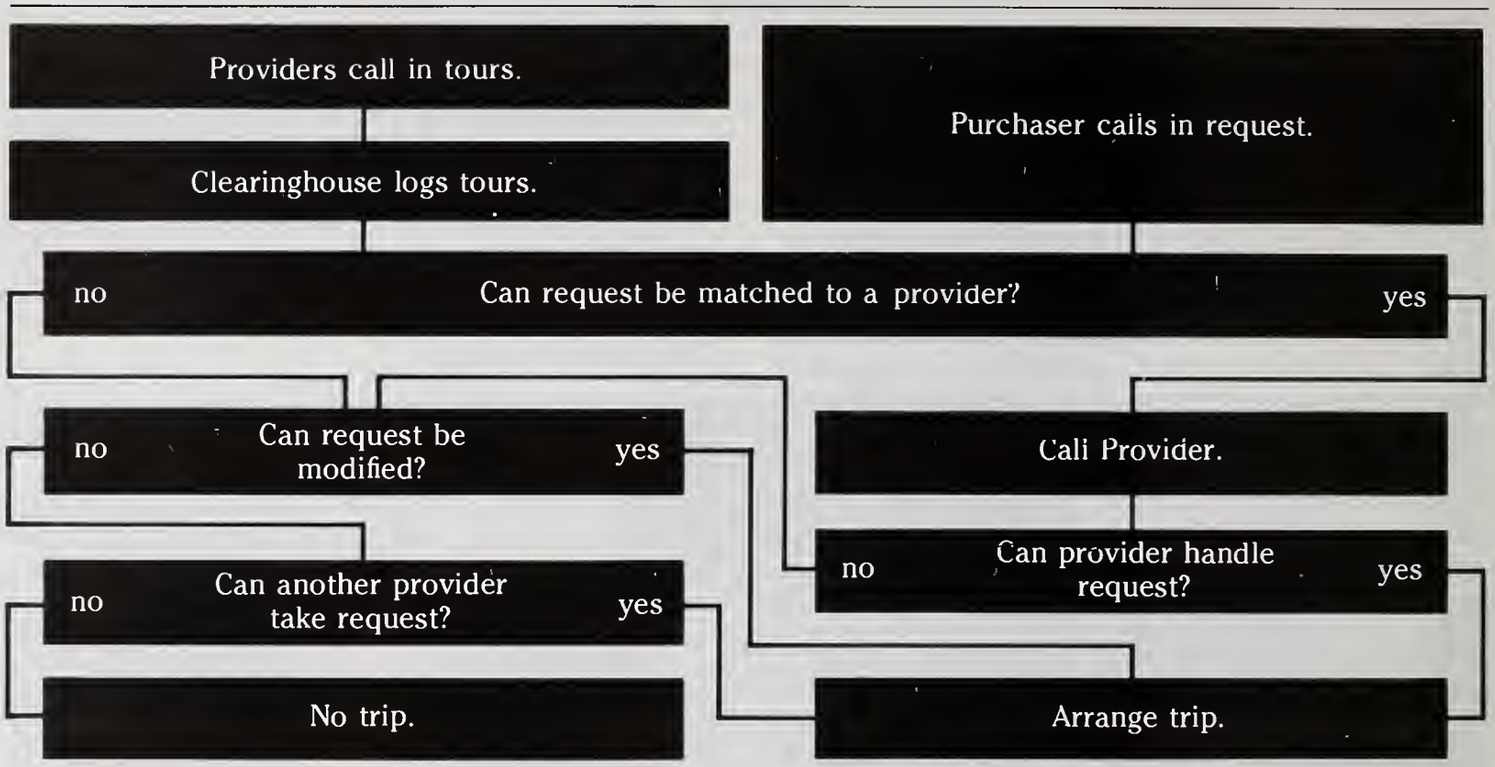


FIG 12. Operations Clearinghouse: Trip Assignment Procedure.

How the Operations Clearinghouse Works

The operations clearinghouse is a repository for routing and scheduling information on the planned vehicle activities of each participating provider. The routing and scheduling information collected by the center represents a detailed picture of all vehicle operations for a given day and can be updated on a daily, weekly, or even monthly basis whenever there is any change in the planned patterns of operations. In the case of subscription vehicle tours, the provider agency may submit to the clearinghouse a written copy of the schedule or a map of the tour. In the case of one-day advance-notice service, the agencies must submit in advance (by mail, telephone, or hand delivery) a copy of the day's tours. The clearinghouse then collates the information for its use. High-quality maps should be used, with erasable plastic overlays so that tours can be drawn and changed as required. (Note that to the extent that trips are arranged on short notice or that vehicle tours cannot be mapped in advance, the clearinghouse concept may prove ineffective; if so, it should be replaced with the central dispatching concept, which does not require advance-notice scheduling.)

Once the information on tours is collected and logged for the day, it can be correlated with purchaser requests. The requests, which may be made in advance or called in during the day, are logged in according to destination, time of day, and number of trips required. The clearinghouse, acting as the intermediary between purchaser and providers, directs the request to the most appropriate vehicle (see Figure 12).

The clearinghouse then notifies the provider of the service request, makes the necessary arrangements, notifies the purchaser of the transportation that will be provided, and initiates the billing process. The level of reimbursement for the service is based on previously signed service contracts.

The operations clearinghouse provides agency-to-agency coordination for the sale and purchase of transportation resources. It is not intended to serve clients directly, although this modification is possible if the clearinghouse is able to take on eligibility verification. An operations clearinghouse does not require that the provider turn control of vehicles over to the coordinating agency.

Establishing the Operations Clearinghouse

The operations clearinghouse requires an administrative office with adequate telephone hook-ups to communicate with purchasers and providers. The office space need not be large, but it should be quiet and have enough wall space to display vehicle tours and service for ready reference. Space may be available in the offices of one of the participating agencies. New phone lines would be required, since the clearinghouse requires its own separate lines. The addi-

TRANSPORTATION REQUEST

Taken By:_____ Date:_____

Original Trip:
Agency:_____
Contact Person:_____
Client Name/ID#:_____
Client Address:_____
Destination:_____
Pick-up Point:_____
Pick-up Time:_____
Appointment Time:_____
Trip Purpose:_____
Client Is: Ambulatory____ Non Amb.____
Elderly____ Handicapped____
Special Information:_____

STATUS:
Agency Name:_____
Vehicle Code:_____
Billing Unit:_____ Amount_____
Driver: Yes:____ No:____ Name:_____

Return Trip:
Agency:_____
Contact Person:_____
Client Name:_____
Destination:_____
Pick-up Point:_____
Pick-up Time:_____
Trip Purpose:_____
Client Is: Ambulatory____ Non Amb.____
Elderly____ Handicapped____
Special Information:_____

STATUS:
Agency Name:_____
Vehicle Code:_____
Billing Unit:_____ Amount_____
Driver: Yes:____ No:____ Name:_____

Unable To Fill Request_____
Reason:_____

Notified Request Agency_____ Date_____ Time_____

FIG 13. Sample Trip Request Sheet.

tion of a second number would allow a purchaser to be put on hold while arrangements for the requested trip were being made between clearinghouse and provider. This would reduce the time of service provision and minimize call-backs.

Staff. The staff of a clearinghouse would be minimal, consisting of an administrator and call taker(s). The administrator would be in charge of adequate record keeping, billing, management information, and liaison with the participating agencies and would handle any policy issues or daily crises as they arose. The call taker would be in charge of gathering and collating the daily tour information, logging in trip requests, and arranging service matches. As a general rule, one call taker should be sufficient for most operations clearinghouse services, unless the number of vehicles exceeds 20, and/or purchasers exceed 10. In general, however, the advance-notice nature of the provider information should allow for fairly easy and rapid response to service requests.

The clearinghouse administrator must develop forms to accept trip requests. The trip request form should indicate the name and address of the individual requiring service, the sponsoring agency, origin/destination data, and the agency providing the service. There should also be space available to specify the reason that any trip request could not be fulfilled. A sample trip request form is presented in Figure 13.

An important element in the creation of an operations clearinghouse is the dissemination of information on how it works and how each agency can benefit. The project coordinator should devote ample time to educating the participants and prospective participants in the use and benefits of a clearinghouse and promoting its use in the community.

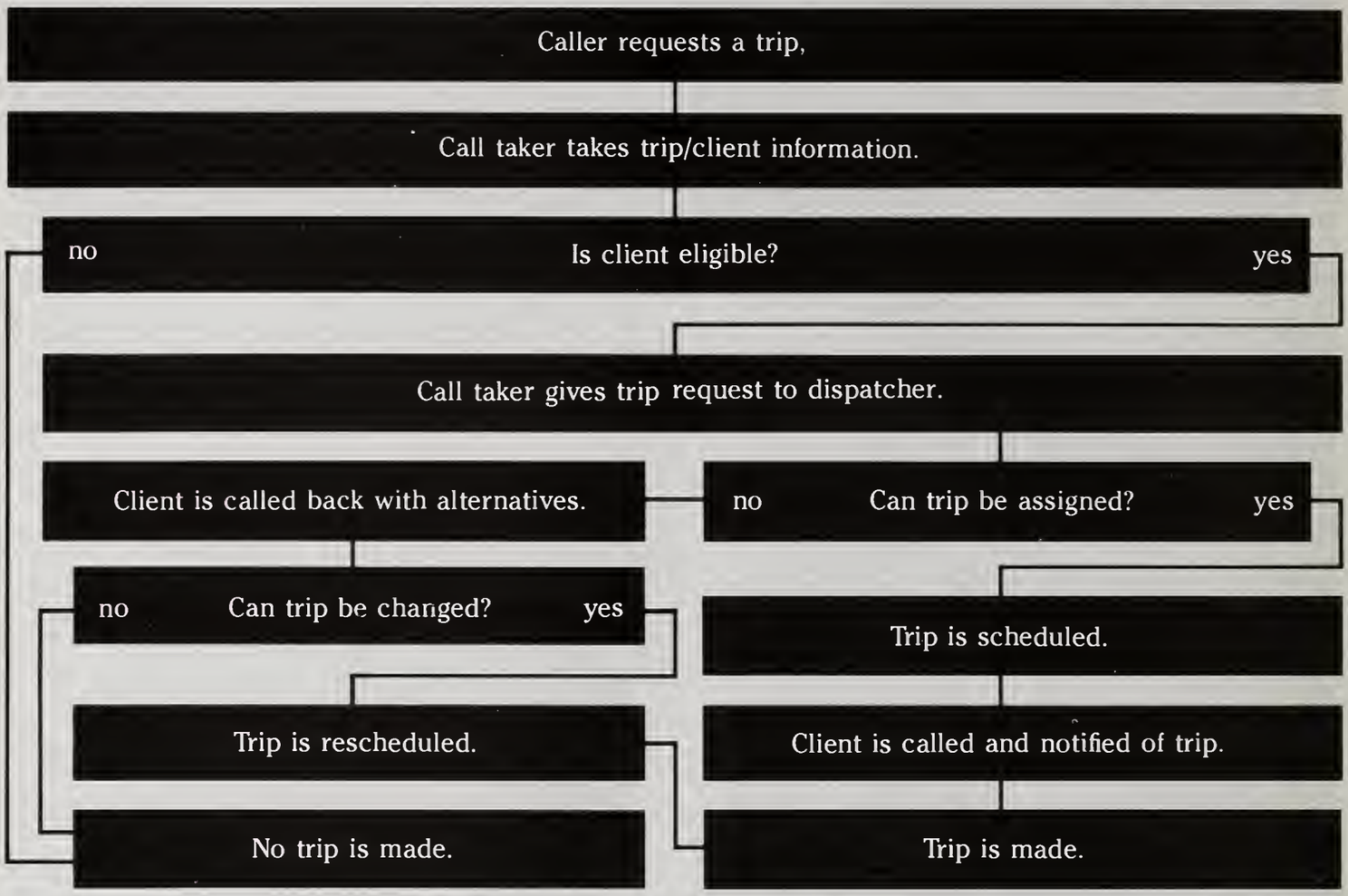


FIG 14. Central Dispatching: Trip Assignment Procedure.

The central dispatching office controls the operations of all participating agency vehicles, thereby eliminating the need for duplicative routing and scheduling functions.

The central dispatching office attempts to make maximum use of participating agency vehicles while maintaining the level of service to provider agency clients. It can also provide new services for purchaser agency clients through ride-sharing and time-sharing. All provider agency vehicles are controlled by a single dispatching office, which is responsible for all routing and scheduling of trips. This office has the ability to arrange the delivery of services, within the limits set through agreements, and to maximize vehicle use. The central dispatcher is able to do more than an operations clearinghouse, in that it can provide a wider variety of services with a minimum of difficulty.

How Central Dispatching Works

Central dispatching places the control of daily vehicle operations for all participating provider agencies under one office. The four key areas in a central dispatching system are client communication, intra-office communication, trip assignment, and dispatching/vehicle communications. An outline of this system is presented in Figure 14.

The *client communication* component is maintained by a call taker, who provides the liaison between the callers and the system. Just as in the operations clearinghouse, the call taker records the requisite information for transmittal to the persons doing the actual trip scheduling and dispatching. In addition to this function, a call taker may also provide information, verify the eligibility of the caller, take cancellations, respond to complaints, and call no-show clients to find out if the trip is still wanted. The call taker should be given the trip request card to ensure that adequate information is collected.

After the call taker has booked a trip request, this request is forwarded to the dispatcher for assignment. *Intra-office communication* between call takers and dispatchers should be simple and may be facilitated by the use of properly designed trip request

forms. The offices of the call takers and dispatchers should be separate but in close proximity.

Beyond their basic call-taking and trip-assignment functions, central dispatching systems may vary significantly, according to the size of the operation and type of trip being dispatched.

For immediate-response trips, the trip request must be conveyed immediately from the call taker to the dispatcher, since in such a system time is crucial to a proper response. With advance-notice services, the situation changes. Because all trip requests are booked in advance, the call taker can also perform scheduling activities for the next day's tours. If trip requests are limited to the morning and early afternoon of the day preceding the trip, trip assignments can be made at the end of the day for use the next morning. In such systems, the dispatching function becomes like a monitoring system, making sure that all the pre-assigned trips are accounted for (as trips completed, no-shows, etc.).

The next step following transmission of the service request from the call taker to the dispatcher is trip-assignment—matching the request for service to a vehicle with capacity for that trip. Trip assignment, as was noted above, is done either by advance notice or immediately, depending upon the characteristics of the system. It includes the completion of dispatcher logs (Figure 15) and driver trip sheets for advance-notice systems, or immediate assignment to a vehicle in operation for immediate-response systems.

Trip assignment requires that the client be assigned to a vehicle that will provide a reasonable travel time for the trip and will be reasonably on schedule. Arrival times are usually given with a "window"; that is, the time is given with the understanding that the vehicle may arrive within a set period of that time (usually ± 10–20 minutes).

Following vehicle assignment, the trip assignment must be relayed to the appropriate driver. If any changes have been made in the request, the client must be notified. Communication with the drivers in an advance-notice system must be made in the morning before the vehicles leave on tour. This communication consists of the driver assignment sheets. During the day, each driver should telephone in, or use the radio on a vehicle if there is one, to get any updates or to report any cancellations or no-shows. In immediate-response systems, the dispatcher contacts the drivers via radio informing them of the next scheduled trip or any deviations in the current tour.

Once the assignment is made, the driver will make the trip called for and log it in on a driver trip log (Figure 16). This completes the activities of the central dispatching office.

Establishing the Central Dispatching Office

Many agency transportation programs have a variety of trip-making needs that cut across such service types as subscription, advance notice, and immediate response. Thus, to establish the type of operations control required of the central dispatching office, the implementation manager should collate the following pieces of information:

- What types of services are currently being offered by each agency, and what types of services will be required of the coordination project?
- How many vehicles will be included?
- Do the vehicles have radios or not?
- Will the agencies be calling for reservations, or will individuals make their own calls for trips?

The answers to these four questions will help determine the structure of the central dispatching function. First, the number of vehicles and types of services offered by each agency will be major indicators. In general, most local areas will find that they have a variety of services and will have to consider some kind of balanced approach to the delivery of service. To achieve this, a system should begin with the coordination of subscription and advance-notice services and then gradually work in immediate-notice services as the system stabilizes and increases its efficiency.

Staff. Office staffing will be determined by the services provided and the method of accepting trip requests. If the agencies collect trip requests and call them in, rather than having individual clients call, the number of call takers for the system will be reduced. Also, agencies will have stricter control over who uses the services than they would if the clients called in themselves. However, this will increase the number of persons involved in the total trip-making process and will reduce the effectiveness of the central dispatching office.

Basically, the central dispatching office requires the following: call takers, dispatcher/schedulers, administrator/bookkeeper, office space, and communications equipment.

The director of the project should estimate the number of calls that could be expected, based upon the information of the participating agencies, and have the appropriate number of persons assigned to the job. The number of call takers can be estimated based upon the number of vehicles available for assignment and the type of service offered. In general, a call taker with an immediate-response system can book trips for 15 vehicles; with an advance-notice system, 20 or more. For subscription services, call

Dispatcher _____ **DISPATCHER LOG** Date _____

Name	Address	Destination	Fee	Time/Date	A/NA	Agency ID

FIG 15. Sample Dispatcher Log.

AGENCY DRIVER TRIP LOG

Agency Name:________ Date:________ Type of Service (Dem. Resp. or Fix.-Rt.):________

Driver:________ Start Time:________ Start Mileage:________

Vehicle:________ Finish Time:________ Finish Mileage:________

SCHED'D PICK-UP TIME AM PM	PASSENGER NAME ADDRESS PHONE NO. (CHECK IF NOT AN AGENCY CLIENT) ✓	TIME PICK-UP ARR. LVE.	MILEAGE	DESTINATION ADDRESS	TIME DROP-OFF ARR. LVE.	TRIP PURPOSE	MILEAGE	SPECIAL ASST'NCE	RIDE SHARING	TIME SHARING

FIG 16. Sample Driver Log.

taking and dispatching can be accomplished by one person. In a system with 10 or fewer vehicles, it is probable that the call taker can also carry out the dispatching function. This is a good possibility with advance-notice systems; in an immediate-response system, it depends upon the volume of calls.

The rules for employing dispatchers follow from those for call takers. That is, a dispatcher can handle about 15 vehicles in an immediate notice system and 20 or more in an advance-notice system. In small systems (fewer than 10 vehicles) the dispatcher's job can be combined with that of call taker.

Equipment. Besides telephone lines, the most important elements of communications equipment are vehicle radios and a base station. The use of a participant's radio equipment would eliminate the time-consuming process of applying for and receiving an FCC radio license, but the equipment should be used only if it can meet the design needs of the service.

All attempts should be made to locate the office for the dispatching center in the offices of one of the participants. Needed are quiet work spaces for the call takers and dispatchers. These spaces should be set up with the telephone and radio equipment, desks, and maps of the service areas. There should be enough wall and table space for making up and posting vehicle assignments.

Administration. The administrative responsibilities of a central dispatching system are limited to overall supervision of the immediate staff and daily bookkeeping and accounting of all trips taken on the vehicles. The actual supervision of drivers and maintenance of vehicles is conducted by the participating provider agencies, who retain these functions. Thus, the administrator will probably need to devote only part of his time to day-to-day supervision; the rest of his time can be given to preparing management information and billing and accountability records for each agency. The manager could be an employee from one of the provider agencies, preferably from the same agency that houses the office.

MAINTENANCE COORDINATION

There are three separate maintenance coordination functions: coordinated storage, coordinated parts purchasing, and coordinated maintenance work. While each can be implemented separately, they can also be combined into a coordinated maintenance center.

The implementation of the first two functions by themselves—storage and parts purchasing—is straightforward and requires little design work beyond that set forth in the *Planning Guidelines.* The analysis of storage possibilities in the *Planning Guidelines* covered the search for appropriate facilities and the assessment of their usability. Given this information, the design of appropriate arrangements consists of entering into agreements between purchasers and providers. For parts purchasing the situation is similar. Data collection among agencies consists of a composite list of parts and costs, lists of suppliers, and a list of potential local or state purchasing programs. From this, a parts sheet can be drawn up that indicates the specific parts, where they can be purchased, and the cost of the part or the discount that will be received. Agencies can then order these parts as they are required. There is no actual design phase; once agreements have been signed, the concept simply goes from feasibility planning to implementation.

Coordination of the third individual function, maintenance work, is discussed here in the context of a total maintenance center, in which all three functions can be combined. Although maintenance work can be coordinated separately, it is generally advantageous to include at least the coordination of parts purchasing with the repair effort. This will ensure

that the necessary parts are always on hand for regularly required maintenance work, thus avoiding unnecessary and costly delays. If centralized vehicle storage is included in the total coordination concept, all the vehicles will be at hand and the scheduling of maintenance work will be simple. However, if vehicle operations are not being coordinated, then each agency will very likely have its own operations center, where it can perform daily maintenance tasks (cleaning, refueling, etc.).

In light of these considerations, we shall define a coordinated maintenance shop as follows: *A shop offering repair work and access to a parts supply. Major supplies, such as motors or transmissions needed only for jobs done on an infrequent and unscheduled basis, will not be coordinated for purchase but will be purchased as they are needed by the vehicle owner.*

How Coordinated Maintenance Works

The coordinated maintenance shop offers regularly scheduled maintenance services, other nonscheduled repairs, emergency road service, and complete records including on the road performance and repairs to each vehicle.

All daily routine work (cleaning, refueling, etc.) is performed by the operator, unless centralized storage is included. If centralized storage is included, daily fuel charges plus an appropriate servicing charge for each vehicle can be assessed to the vehicle owner. In the case described below, each provider operates as a separate system, using the maintenance center only for periodic inspections and repair work.

To use the maintenance center, agencies bring in their vehicles for regular maintenance work (e.g. 3,000, 6,000, or 12,000 mile checks) as required. If other work is needed, the agencies make appointments with the maintenance shops for completion. All work is covered under a preliminary agreement, so that the purchaser and provider both are aware of the costs for the services and the coverage allowed under each routine inspection.

Establishing a Maintenance Center

The *Planning Guidelines* outlines the first steps determining the feasibility of a coordinated maintenance center. Assuming that the local agencies are interested in a joint maintenance program, those providers with adequate facilities or an interest in developing a facility should be contacted.

Contact with the potential providers should be made in the form of a proposal for the work that is to be done, along with a request for cost estimates for the program components. On the basis of these estimates, a maintenance provider can be selected. The contract for maintenance should include the following elements:

First, the participating agencies should decide on a schedule for *regular maintenance.* A standard service plan would include the following:

- 3,000 mile service
- 6,000 mile service
- 9,000 mile service
- 12,000 mile service

These routine preventive inspections are vital for maintaining adequate vehicle performance. The goals of preventive maintenance are to ensure a high level of service through safe and reliable operations; to minimize the cost of service through maximum vehicle availability and utilization; and to minimize disruptions such as breakdowns or out-of-work vehicles. Fig. 17 shows a representative list of the items typically checked in routine maintenance service.

A second set of maintenance services involves *irregular repair work,* required at various times during routine operations. This work cannot be scheduled, because the problems occur randomly; appointments have to be made for these services on an as-needed basis. This work itself can be billed in accordance with job rates determined mutually by the provider and purchasers. Any service not listed in the job rates can be billed according to the labor rates set by the provider, plus the cost of parts.

Finally, a *parts-purchasing agreement* and *storage arrangements* may be included if desired. Under a purchasing agreement, the provider can purchase all parts for the routine work and include the costs as part of the schedule of fees. For nonroutine repairs, any parts furnished by the purchaser can be installed for labor charges only. Arrangements can be made to purchase these parts from the provider if there is a cost savings to be had.

Using these elements as the basis of a maintenance agreement, it should be fairly simple to initiate actual working arrangements. The contractor would agree to the specified work on a timely basis and at a predetermined cost. The vehicle owners would be responsible for bringing the vehicles in for routine inspections at a time specified by the contractor. The maintenance shop would then perform all work and maintain adequate records for each vehicle. (For further discussion of working arrangements, including a

sample contract, see Chapter 6, Final Agency Contracts.)

Developing a maintenance shop is a straightforward process, especially when working with existing providers. lt consists of drawing up a list of work to be done, obtaining bids for services, and selecting the best bids. ln general, projects will find that it is best to deal with an existing shop that is already able or can be expanded to perform the work rather than setting up an entirely new shop. The task of setting up a new facility would require obtaining an appropriate site, equipping the shop, hiring mechanics, and establishing administrative procedures. These tasks would be time consuming, extremely costly, and in most cases would duplicate existing services in the local area. An alternative arrangement would be to pool the equipment and staff of existing agency maintenance shops and relocate them in a central facility.

3,000 MILE SERVICE

Lubrication and General Maintenance

A. Chassis Lubrication
B. Fluid Levels Check
C. Engine Oil Change
D. Cooling System Check (includes pressure cap and system pressure check, anti-freeze/coolant, related belts and hoses check)

Safety Maintenance

A. Tires and Wheels Check
B. Exhaust System Check
C. Engine Belts Check
D. Suspension and Steering Check
E. Disc Brakes Check (if drum brakes includes pedal level and hydraulic leak check)

Emission Control Maintenance

A. Carburetor and Hoses Check
B. Engine ldle Speed Adjustment
C. Carburetor Mounting Torque

6,000 MILE SERVICE

Lubrication and General Maintenance

A. lncludes ltems (A) thru (D) of 3,000 Mile Service
B. Engine Oil Filter Change

Safety Maintenance

A. lncludes ltems (A) thru (E) of 3,000 Mile Service
B. Throttle Linkage Check
C. Underbody Check

Emission Control Maintenance

A. lncludes ltems (A) thru (C) of 3,000 Mile Service
B. Manifold Heat Valve Check
C. Engine Timing and Dwell Angle Check
D. Engine Idle Mixture Adjust
E. Emission Control System Check
F. Spark Plug and lgnition Coil Wires Check (visual)

9,000 MILE SERVICE

Lubrication and General Maintenance

A. lncludes ltems (A) thru (D) of 3,000 Mile Service

Safety Maintenance

A. lncludes ltems (A) thru (C) of 3,000 Mile Service

Emission Control Maintenance

A. lncludes ltems (A) thru (C) of 3,000 Mile Service

12,000 MILE SERVICE

Lubrication and General Maintenance

A. lncludes ltems (A) and (B) of 6,000 Mile Service
B. Wheel Bearing Repack

Safety Maintenance

A. lncludes ltems (A) thru (D) of 6,000 Mile service

Emission Control Maintenance

A. lncludes ltems (A) thru (F) of 6,000 Mile Service
B. Spark Plug Replacement
C. lgnition Points, Condenser and Rotor Replacement
D. Fuel Filter Replacement
E. Air Cleaner Element Replacement
F. PCV Valve Replacement

FIG 17. Maintenance Service Program.

ADMINISTRATIVE COORDINATION

Four areas of administrative coordination were discussed in the *Planning Guidelines.* The considerations, data analysis, and procedures required for planning carry over to a great extent to the implementation process. The implementation of coordinated purchasing or training requires little more in the way of design. The coordination of *management supervision* and the *information and referral* system, however, requires some additional implementation work before agency agreements can be established.

The implementation of coordinated purchasing or training will require little additional work prior to the signing of interagency agreements to sponsor such efforts. In the case of purchasing, those agencies interested in working together to obtain items such as vehicles and insurance could begin to arrange funding and contact vendors. In the case of training programs, dates could be set for a training program presentation to be used by more than one agency.

Management Supervision

Management coordination, in which one person or a management team is selected to run the agency transportation programs, can be carried out in two ways:

- The management supervision requirements of all participant agencies can be fulfilled by one or more of the existing agency staff who have demonstrated experience in transportation management.
- A professional transportation manager or private management firm can be hired at a cost that is consistent with the reduction of responsibilities on the part of each of the participant agencies.

Management coordination is useful if it results in more efficient agency operations. Implementation is basically simple once an agreement has been reached and funds are made available.

To hire an individual manager, the participants should follow the same procedures as for hiring the implementation coordinator. In fact, for maximum consistency within the coordination program, these two positions should be filled by the same person.

If an outside management firm is to be hired, a request for proposal (RFP) should be written and sent to a number of qualified firms. Writing the RFP will be the responsibility of the implementation coordinator, working with the participating agencies to develop exactly the requirements desired.

The RFP should state the scope of the management duties, the time period during which they are to be performed, and the anticipated cost of the contract. The RFP may also state the capabilities and experience that the coordination project is looking for and the precise criteria by which the proposals will be ranked. The RFP should include a clear outline of the information to be included in proposals, such as a statement of the firm's or individual's background and experience, proposed costs, and how the work will be carried out. The RFP should be sent to local transportation operators, consultants, and specialized management firms. Based on the proposals submitted by firms and individuals, two or three finalists may be selected for personal interviews before a selection is made. The final step is to sign a contract with the best qualified person(s) or firm.

Once hired, the manager can begin to take over the responsibilities set forth in the RFP (which should follow the lines of management supervision presented in the *Planning Guidelines).*

INFORMATION AND REFERRAL

Information and referral services, provided through telephone communications between caller and transportation provider, are designed to give program information to prospective clients requiring information. Information and referral (I & R) is often coupled with client outreach to provide a comprehensive community service network between agencies and the general population.

How An Information and Referral System Works

Coordinated agency transportation information could easily be incorporated into an existing information and referral system, which would allow clients to call a single number for all informational and referral needs. The information and referral center would take information from callers—including name, address, age, and trip purpose—and then refer them to the proper agency provider for service. The center would not make any trip arrangements; all such arrangements would be made directly between the client and the provider. Figure 18 presents a flow diagram of a typical information and referral center.

Establishing an Information and Referral Service

The coordination of transportation information and referral services could be achieved either through the use of an existing information and referral number or through the development of a new office. In either case, the requirements for its establishment are simple.

First, the information and referral center should have a separate telephone number (s) and line(s) for the transportation component.

This number should be well publicized for maximum effectiveness. Having a separate number as part of a general information and referral service would enable the coordination project to monitor the use of the service accurately for documentation and record keeping.

The telephones should be staffed by a call taker with adequate information about various transportation programs. This means that each participating agency must provide the details of its transportation programs (including service area, service hours, client eligibility, and specialized vehicular equipment) and

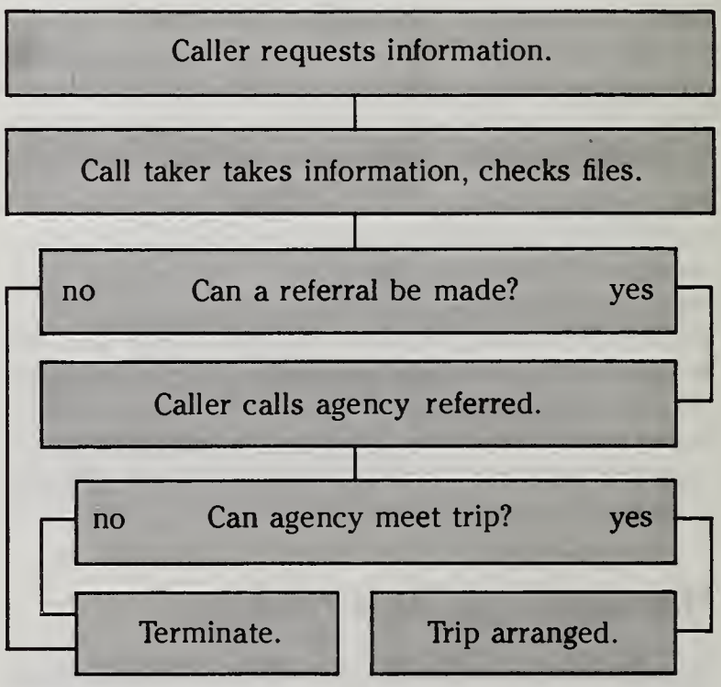


FIG 18. Information and Referral: How It Works.

must provide updates as they become necessary. The call takers can be persons who provide other I & R services, if an existing information and referral center is used; otherwise, new staff must be hired for the purpose. In areas where there is public transit, it may be possible to place the information and referral center in the public transit system's information office.

The office space for an information and referral center need consist only of a desk, telephone lines, and a file or bulletin board system for maintaining records.

To initiate the service, the participating agencies (including public transit operators) would turn their transportation information into the center. Call takers would gather this information and then use it to make referrals as calls came in. Each call taker would complete an information sheet for each request and the action taken. It would then be up to the caller and the agency to complete the request satisfactorily.

TOTAL COORDINATION

Total coordination occurs when agencies assign to one organization all transportation responsibilities: the administration and provision of transportation services, including routing and scheduling, operations, maintenance, and billing.

Establishing a Total Coordination Program

Total coordination requires the centralization of all operating, maintenance, and administrative functions. Besides including some or all of the coordination concepts, total coordination also requires centralized billing and accountability and financial planning (see Chapter 4, Financial Planning and Management).

The system design for total coordination consists of an amalgamation of the concepts previously defined. A single organizational entity, as defined in Chapter 2, would take full responsibility for the delivery of services to current providers and purchasers.

Each transportation area would be affected, as explained below.

Operations. One of the major changes in total coordination is that all provider vehicles would be turned over to the coordination project. The coordination project would then schedule all trips and centrally dispatch all vehicles to meet the needs of each participant. Agreements defining the services to be provided, costs, and conditions would ensure adequate protection of both parties (Chapter 6). All participants would call in requests for the appropriate vehicle for service. Under total coordination, an operations clearinghouse would become superfluous, since all vehicle activities would be under a single dispatcher.

Maintenance. Because the coordination agency would be responsible for all the vehicles, it would also have to provide centralized repair facilities. These facilities could provide all daily, routine inspection and repair work, coordinate parts purchasing, and have the capacity to do major repair work. The coordination agency might find it more economical to do the maintenance work on a contract basis to a local agency, rather than maintain its own shop (considerations for such decisions are given above). Centralized storage would not be essential to the project, but all vehicles should be readily available to the project at all times.

Administration. The total coordination project would be monitored by a single organization with concomitant responsibilities: maintenance of agency billing and records, preparation of daily trip reports, accountability for all trips, financial planning, and maintenance of daily accounts. The administrators would also have to monitor daily operations and maintenance and see that high quality service is provided.

The total coordination organization would provide training for all employees, do all purchasing for the project, and provide an informational telephone service through its call takers.

As indicated by this summary, the total coordination system design is the amalgamation of most of the design concepts already described. The key to total coordination is the total shift of all transportation responsibilities to one agency.

FINANCIAL PLANNING AND MANAGEMENT

The financial planning process for a coordinated system is very simple in concept; however, it can become very complex in terms of the actual details of the process. One fact that has emerged from the experience of many coordinated systems is that poor or casual financial planning may ultimately lead to serious problems. All participating agencies should develop a thorough understanding of the financial planning effort through an involvement in the process.

The conceptual process for financial planning is based on the premise that a viable coordinated system must be self-supporting, in the sense that all expenditures must be balanced by revenues, whatever the source. For the most part these revenues are expected to come from, or through, the agencies that purchase and receive services provided by the coordination project. The major tasks in financial planning involve the estimation of expenditures, represented by the development of a budget and of billing rates. The rates for service must be established in a manner that is equitable and simple for the agencies to understand.

The difficulties in financial planning for coordinated systems stem primarily from the changes that occur as a system goes from the planning state through start-up and then into stable operations; it is sometimes difficult to predict costs in advance of service expenditures. Significantly, public transportation systems have a built-in mechanism to allow for fluctuations as the majority of funding comes through a subsidy mechanism from local and federal governments. Changes in operating costs and farebox revenues are usually absorbed through this type of subsidy. However, coordinated agency transportation systems do not have such subsidy mechanisms available except in special circumstances. Changes in operating costs must be anticipated and dealt with through a reserve fund or through a direct adjustment of the billing rates. Thus, coordinated systems are more sensitive to fluctuation—a factor that must be addressed by proper understanding and management of the financial system.

Several important points must be understood by financial managers of coordinated transportation systems. The first of these is the distinction between the two basic methods that agencies use to defray the cost of transportation services.

The *grant method* is used for the block purchase of transportation for a specific category of eligible clients. It is often used for all or a portion of the capital and operating costs for the transportation service. The important feature of a grant is that it does not link funding to the delivery of a specific number of units of service. Agencies that typically use a grant funding method for transportation include Title III of the Older Americans Act and Head Start programs.

The *purchase of service contract* is based on the establishment of a unit of service and cost. A typical example would be the purchase of a specific number of trips at a set rate for each trip. Title XIX (Medicaid) and Vocational Rehabilitation programs are among the types of agencies that rely on a purchase of services approach.

The important difference between these two types of funding sources is that grant funding can become an open-ended transportation cost responsibility, with only a fixed amount of funds available. In other words, the expectations and demands on the system could exceed available funding. Financial planners must be aware of this type of financial liability and work with the funding agency to negotiate an estimated number of trips which can be provided under a grant. With a purchase of service agreement, the relationship between trips and funds is clear.

A second important point relates to the effect of capital equipment purchases on a coordination project. Most projects will initially use existing resources (vehicles and facilities) whenever possible, thereby limiting the need for capital equipment. In general, this is a sound practice, since it allows for the maximum use of funds for operating purposes. When capital equipment, such as new vehicles, is definitely needed, the participating agencies will have to develop a specific plan for funding capital purchases through such mechanisms as federal grants.

The third important point for financial managers is the distinction between pre-operations, start-up, and operations costs. In this section we are concerned with the cost of operations and the recovery of these costs to achieve a financially balanced system. *Pre-operations costs* are those costs that are incurred during the implementation period right up to the beginning of operations. These costs will usually consist only of the staff costs and/or contractual costs associated with the service design and other activities during the implementation process. The staffing costs can be estimated directly from the level of effort estimates as described in Chapter 2. *Start-up costs* should also include fund reserves to provide for cash flow, since most agency transportation services are paid for on a billing or post-payment basis. Because the average time for reimbursement may range from one to three months, funds must be available to pay for current expenses, such as drivers' salaries and gasoline. Thus start-up costs can be defined in two parts: prepaid operating costs and working capital.

ESTABLISHING A BUDGET

The budget for a coordinated system is an estimate of all expenditures that will be incurred by the system over a period of time. Typically, a budget is developed for a one-year period, but multi-year (e.g., 3–5 year) projections are often made to enable projects to provide the information required by funding sources such as Title XX. During the early start-up period of a coordination project, the budget should be reviewed very often and revised as necessary in order to keep it accurate. If an incremental start-up is planned, where only a certain percentage of operations will be initiated at project start-up, this must be reflected in the preparation of a budget in corresponding incremental steps. An incremental start-up creates potential problems in the area of billing rates, since it is likely that different rates will have to be imposed as each increment is added on.

The budget development process consists of estimating costs for all different elements of the coordinated system design, which is the basic starting point for all of the following discussion. All transportation budgets will divide into two basic categories:

(1) Operations budget—including vehicle operations, vehicle maintenance, and administrative expenses

(2) Capital budget—including programming and financing of all vehicular and communications equipment

The budget should reflect estimates of all costs for the proposed operation. If the system is expected to receive contributed or inkind services from some source, the value of those services should be included in the budget. (The issue of whether to recover all costs, including in-kind, or only direct, out-of-pocket costs is discussed in the following section, Financing Project Operations.)

The budget will reflect the simplicity or complexity of the coordination system design. If the coordination project is limited to a very simple concept such as coordinated purchasing, there will be no real need for a formal budget, since the amount of time, effort, and costs for coordination will be minimal. Similarly, if the coordination project elects to contract for all services, the budget process will assume aspects of a negotiation process to establish rates. This situation is covered later in this chapter.

In the general case, there will be a need to develop a formal budget. The process outlined below describes the development of budgets for a totally coordinated system. Its use for other types of coordination concepts is simply a matter of deleting the cost catagories that do not apply. The budgets are developed using the same functional categories as were developed in the *Planning Guidelines,* which reflect requirements placed on transit systems by the Urban Mass Transportation Administration (UMTA) under its Section 15 reporting procedures.* The functional categories used for budget preparation are presented in Fig. 19; if further refinement is required, then UMTA Section 15 should be consulted.

Vehicle Operations Budgeting

The first portion of concern in the operations budget is the vehicle operations budget. This budget includes labor costs for operating, scheduling, and dispatching vehicles; the costs of fuel and oil, tires, and batteries; and the costs associated with vehicle insurance, licensing, and leasing (if applicable). In order to derive these costs, it is necessary to have a clear plan for vehicle use, including such data as annual vehicle hours, annual vehicle mileage, and the number of vehicles. This information is needed for developing the various cost categories for the vehicle operations budget.

Labor Costs. Labor costs comprise the first category of the vehicle operations budget estimated. Because labor costs represent the largest portion of the budget, care should be taken to estimate these cost as accurately as possible. Labor categories include vehicle drivers, call takers, schedulers, dispatchers, and operations supervisors. The estimation process is simply a matter of calculating the number of hours that a particular labor category will be expected to work over the budget period. Since labor cost is a function of hours worked, it is termed a *variable cost.*

There are two components of labor cost: salary and fringe benefits. Salary is usually expressed in terms of cost per hour (wage rate). The annual cost for a dispatcher is obtained by multiplying annual work hours (usually 40 hours/week × 52 weeks/year = 2,080 annual hours) by the hourly wage rate. The total cost is then the salary plus fringe benefits. Fringe benefits, usually expressed as a percentage of the salary, are computed as a separate item, because they are related to the number of employees rather than the number of work hours. Fringe benefits may include paid vacation, holidays, and sick time, insurance, and employee contributions to federal, state, and local taxes.

*"Urban Mass Transportation Industry Uniform System of Accounts and Records and Reporting System", Volume 1–4, USDOT/UMTA, UMTA-IT-06-0094-77, January 1977.

PROJECT OPERATIONS BUDGET FOR PROJECT (PROJECT NAME) FOR THE YEAR: _____ TO _____

COST CATEGORY	ANNUAL EXPENSE
VEHICLE OPERATIONS	
Driver salary	
Dispatcher salary	
Fringe benefits	
Fuel & oil	
Tubes & tires	
Vehicle insurance	
Vehicle depreciation	
Vehicle lease	
Vehicle license, registration, tax	
Vehicle storage facility rental	
MAINTENANCE	
Mechanic salary	
Mechanic aide salary	
Fringe benefits	
Maintenance service contract	
Materials & supplies(parts)	
Maintenance facility rental	
Equipment rental	
Utilities	
ADMINISTRATION	
Administrator salary	
Manager salary	
Secretary salary	
Bookkeeper salary	
Fringe benefits	
Materials & supplies	
Telephone	
Office rental	
Utilities	
Office equipment rental	
Purchase of transportation service	
Miscellaneous	
TOTAL EXPENSE	

FIG 19. Sample Operations Budget.

The computation of vehicle driver costs is similar to that of other employees, except that it must reflect realistic vehicle hours. For example, a system that operates 5 vehicles, 35 hours per week each, 52 weeks a year, requires 5 drivers. The annual work time for this service would be $35 \times 52 \times 5$, totaling 9,100 *annual vehicle hours.* However, if the drivers are also required to prepare the vehicles (gas-up, inspect, clean, etc.) each day, and cover 8-hour shifts, then the *annual driver hours* would be $40 \times 52 \times 5 = 10{,}400$ hours, or an additional 1,300 annual hours. The annual driver hours must be used to estimate driver labor costs to avoid underestimating. If part-time drivers are used in addition to full-time drivers, their costs are figured by the same formula as that for full-time drivers—by accounting for the time they are required to work. Fig. 20 presents a sample work sheet for developing an estimate of labor costs.

The specific labor categories used may vary with the size of the system. In a small operation, for example, the functions of call taker, scheduler, and dispatcher may be combined into one labor category, designated simply "dispatcher." On the other hand, large operations, those involving more than 20–25 vehicles, may require an operations supervisor in addition to the system manager or director.

Other Variable Costs. Other variable cost items in the vehicle operations budget are fuel and oil, tires, and batteries. These cost categories are variable because they depend on the annual mileage traveled by each vehicle. For fixed-route service, the annual vehicle miles can be determined from the length of the routes and the number of runs to be operated in the budget period. For services that are not fixed route, vehicle mileage is obtained by multiplying vehicle hours by an estimated vehicle speed. (Vehicle speed can be estimated by averaging data from the individual participating agencies.)

In order to translate mileage into costs, factors must be derived for fuel, oil, tire, and battery costs. Where possible, these estimates should be made from local agency data. Typical estimates for these costs are defined below, in terms of vehicle size:

	VEHICLE SIZE	
	8–16 PASSENGER	17–25 PASSENGER
FUEL (gasoline)	8–10 mpg	5–8 mpg
FUEL (diesel)	12–15 mpg	8–12 mpg
OIL	$0.004–0.006/mile	$0.005–0.007/mile
TIRES, TUBES, & BATTERIES	$0.01–0.02/mile	$0.01–0.02/mile

The costs of oil, tires, tubes, and batteries are obtained by simply multiplying the annual vehicle mileage by the cost factor. Fuel costs are obtained somewhat differently: by dividing the annual vehicle mileage by the fuel efficiency (mpg), which yields annual gallons of fuel to be consumed. The annual gallons of fuel are then multiplied by the average estimated cost per gallon of fuel, resulting in the annual cost for fuel. These calculations will then yield the cost of the variable expenses in vehicle operations.

Insurance, Licenses, Leases, etc. The remaining cost categories in the vehicle operations budget (insurance, vehicle leasing, licenses, registration, taxes, and storage costs) are based on the actual costs the system will incur for these items, based on insurance premiums quoted, lease agreements, etc.

One of the major problems facing any transportation operation is the replacement of vehicles. Public transportation providers rely primarily on federal capital grants from the Department of Transportation (80 percent federal funding) in order to purchase replacement vehicles and additional vehicles for new service purposes. Private transportation providers build depreciation into their rate structures so that they have funds available for replacement vehicles. Agency transportation providers rely on grants and regular human service program funds for replacement vehicles. In some instances DOT capital grant funds are available to agency providers, but only if they intend to provide or are actually operating services that can be considered open to the general public or a portion of the general public, which includes elderly and handicapped persons.

When coordinated agency transportation operations involve the use of an agency's vehicle for transportation of other agencies' clients, two issues generally arise. The first of these is the question of replacement of vehicles by the coordinated system. As part of the budget development process, the implementation manager must project the useful life of the vehicles that are going to be used and plan for their replacement (capital budgeting). Two approaches to replacement are available: the use of local, state, and federal grants; or the adoption of a vehicle use charge built into the rates charged to purchasers. If the vehicles remain under the ownership of the individual agencies (as in an operations clearinghouse or centralized dispatching), the vehicle use charge allows funds to be allocated to the owning agency for future replacement purposes. If the vehicles become the total responsibility of the system (as in total coordination), the vehicle use charge is retained.

A second, directly related issue is the question of accelerated vehicle use. Under coordination, vehicles will be used more intensively; thus, agencies will

Labor Category	Wage Rate	Total Hours	Budget Cost	
Drivers (level I)				
Estimated Overtime				
Fringe Benefits:	.____ full-time @ $____			
	.____ part-time @ $____			
			TOTAL →	
Drivers (level II)				
Estimated Overtime				
Fringe Benefits:	.____ full-time @ $____			
	.____ part-time @ $____			
			TOTAL →	
Dispatchers				
Estimated Overtime				
Fringe Benefits:	.____ full-time @ $____			
	.____ part-time @ $____			
			TOTAL →	
Schedulers				
Estimated Overtime				
Fringe Benefits:	.____ full-time @ $____			
	.____ part-time @ $____			
			TOTAL →	
			GRAND TOTAL →	

FIG 20. Sample Labor Budget Estimation Form.

be placed in a position where vehicles must be replaced more frequently. In such instances, accelerated vehicle use charges should be computed and built into the overall costs.

A difficulty in the area of vehicle use and replacement charges occurs when the vehicles in question have been purchased completely, or in part, with federal funds. Current federal regulations set forth by the Office of Management and Budget prohibit a federal grantee from charging any vehicle replacement costs back to the grant. The apparent reasoning is that the vehicle has already been paid for with federal funds, and therefore any further payment would constitute an overcharge or double charge. This, of course, locks a grantee into a situation where the replacement vehicle must be funded through another federal grant or through some state or local funding source.

As for vehicle use charges, it should be understood that there is no prohibition against one agency's charging another agency for the use of its vehicle in coordinated transportation services. Therefore, in a totally coordinated system involving a newly formed coordinating agency, it would be possible to impose a vehicle use charge on all the participating agencies. Under centralized dispatching, where each agency retains control and ownership of its vehicle, it would be possible for the agency to impose a vehicle use charge directly related to the additional use of its vehicle as a result of coordination.

The imposition of vehicle use charges and their computation can become very complex when partial federal funding is involved or when estimates of accelerated vehicle usage are required. There is no need to consider such charges when a regular program and source of vehicle replacement funding is available. Among the possibilities for such funding are local funds for matching federal program funds, which can be dedicated for vehicle replacement on a regular basis. Another possibility is development of the coordinated system in a form that makes it eligible for funding under DOT capital grant programs. It is worth the effort to fully explore the possibility of regular vehicle replacement funding before considering the imposition of vehicle use charges.

Maintenance Budgeting

Maintenance costs involve labor, materials, and other costs. The labor categories include mechanics and maintenance support personnel. Maintenance support personnel are used for cleaning and fueling

vehicles and for other maintenance related tasks that do not require skilled mechanics. If there are more than two mechanics, the senior mechanic can assume supervisory responsibility with regard to maintenance scheduling. Maintenance labor costing can be accomplished using the same approach as that for the operations labor category.

Maintenance materials costing is more difficult, since it includes separate categories, such as maintenance parts, and specialized subcontract work, such as automatic transmissions. A possible source of cost data on these elements will be the maintenance records from the participating agencies. If such data are not readily available, it may be necessary to make an estimate of costs based on the mileage expected to be accumulated on the vehicles during the budget period. The cost factors used for maintenance work are $0.05–0.08/mile for 12–16 passenger vehicles and $0.03–0.05/mile for 17–25 passenger vehicles. These factors will vary with vehicle age, with older vehicles having higher cost factors. Estimates of specialized maintenance work can be judged only from vehicle conditions, mileage and age, and the local costs for performing work.

Other costs that must be estimated are rental/leasing of the maintenance facility and equipment and the cost of utilities for the garage. These costs can be derived from actual experience and should not be hard to estimate.

If the coordination project chooses not to operate its own maintenance facility, it will have to contract out for maintenance service. The negotiated cost for performing predetermined maintenance such as tune-ups and oil changes will then be the estimated cost for the service.

Administrative Budgeting

All labor cost estimates (salary and fringe benefits) for administrative personnel are handled in the same manner as for operations and maintenance personnel. The salary ranges for some typical positions, based on both the HDS and FHWA Section 147 demonstration programs, are shown in Fig 21.

Cost estimates for such items as office space and utilities must be determined by actual examination of proposed sites and discussion of rates. Costs of office materials and supplies, equipment, telephones, and miscellaneous expenses should be based on experience in managing and operating other project offices. Under miscellaneous expenses, estimates for legal fees, auditing, and local travel may be included if a need for these services is anticipated.

A coordination project may involve the use of contracted services to provide part of the operations, in which case the costs of those services should be factored into the administrative budget. The estimating process requires that the number of specific units of contracted service that will be needed during the budget period be clearly defined. In most cases this can be derived from the system design or through the previous experience of the participating agencies. For example, if a certain number of long-distance trips are identified in the system design, the project may consider contracting those trips to a local taxi or bus operator, if it appears to be cost effective. The cost of that transportation can then be estimated through a negotiation process with the taxi or bus operator. All service contractors will generally be willing to give a firm estimate of the costs of providing service if it is done on a unit cost basis. The use of a fixed dollar amount for the purchase of a service is generally not advisable, since contractors will build in a "cushion" in order to protect themselves from financial loss. The use of a unit cost basis (per trip, per hour, per mile) also offers the opportunity to make future adjustments in the required levels of contracted services with an understanding of the cost impacts of such changes.

Position	Annual Salary[1]
Executive Director[2]	$13,000 to $21,500
Operations Manager[3]	$10,500 to $18,000
Secretary	$ 6,000 to $ 8,000
Bookkeeper	$ 7,500 to $ 9,000

1 Salary does not include fringe benefits, and is given in each case for a full-time employee.
2 The executive director of the coordination agency. In the case of a newly formed private nonprofit corporation, this would be a full-time position. In the case of an existing agency, this person would devote only a portion of the time to transportation.
3 This position is second in command to the executive director and has responsibility for daily operations. In many small systems there is only one executive director/operations manager position.

FIG 21. Salary Levels for Coordination Employees.

Summary

Once all three functions of the operation budget have been determined, the budget for the first year (or some other time period) of operations will be established. Once the service is in operation, it will

Vehicle Age	Present Fleet	Program Year				
		1	2	3	4	5
1 year	2	4	2	2	—	2
2 years	—	2	4	2	2	—
3 years	1	—	2	4	2	2
4 years	—	1	—	2	4	2
5 years	4	—	1	—	2	4
Total Fleet Size	7	7	9	10	10	10
Replacement*	4	0	1	0	2	4
New Service**	0	2	1	0	0	0

*Replacement vehicles ordered at the beginning of the fifth year of service.
**New service vehicles ordered one year before they are needed in operations.

FIG 22. Sample Vehicle Replacement Schedule.

become evident that future planning is required, either for expansion of services or for grant applications. Then it will be necessary to start developing the budget for a three- to five-year period. In developing this long-term budget, the implementation planner should consider all factors used in the initial budget and take note of any expansions of service (in terms of vehicle mileage and annual vehicle hours), addition of employees, and most importantly inflation. The long-term budget will make it possible to plan future operations and to plan for new or additional sources of funds to meet those future budget requirements.

Capital Budget

The capital budget must reflect the total cost of all purchases and the designation of funding sources. It is important to define the sources of funding so that local matching funds can be calculated. Fig 23 presents a capital budget work sheet for the replacement schedule presented in Fig 22. In this hypothetical example, various funding sources are used for illustrative purposes. The long term capital budget will make it possible to plan ahead and identify the local funds that will be required in future years.

Start-up Funds

Start-up funds refer to the cash requirements of the project before operations can begin. These funds can include match monies for equipment purchases, vehicle insurance payments, legal fees, licensing, and the working capital required to handle cash flow

	Year					
	Present	1	2	3	4	5
# Vehicles	4	2	2	0	2	4
Total Cost	$80,000	$44,000	$48,000	—	$58,000	$128,000
Source of Funds						
1). UMTA Sec. 18						
# Vehicles	0	0	2		1	2
80% Federal	—	—	$38,400		$23,200	$51,200
20% Match	—	—	$9,600		$5,800	$12,800
2). UMTA 16(b) (2)						
# Vehicles	4	2	0		0	0
80% Federal	$64,000	$35,200	—		—	—
20% Match	$16,000	$8,800	—		—	—
3). Title XX						
# Vehicles	0	0	0		1	2
75% Federal	—	—	—		$21,800	$48,000
25% Match	—	—	—		$7,200	$16,000

FIG 23. Sample Capital Equipment Budget.

needs. The start-up funds must be in place to ensure that the project will have sufficient resources to handle the transition from the beginning of operations until steady operating conditions have been achieved. One of the common problems that most coordination projects face is the turnaround time for payments for service from an agency's funding source, which can take 45–60 days or even longer. Therefore, the coordination project must have working capital in order to cope with problems in cash flow. The implementation manager must define the costs associated with these expense items and obtain sufficient financial resources from the participating agencies to ensure that the project can operate on its own funds for at least two months. Start-up funds can be sought from a wide variety of sources, including grant advances, other arrangements for advance payment, or interest-free loans from local government.

FINANCING PROJECT OPERATIONS

A major task facing any coordination project is obtaining adequate financing—through all sources of revenues—to allow the project to be self-sustaining. The *total cost of operating* the system for a one-year time period has been projected in the operations budget. Any *capital equipment costs* that are scheduled to be generated through project revenues must also be added to the operations budget to establish the *total revenue requirements*.

In establishing the operations budget, it is likely that certain costs may be met through contributed or in-kind services. For example, a part of the driver labor effort may be supplied by volunteers. This leads to one of the first major considerations in the financing of project operations: How should in-kind services be considered in terms of billing to agencies for transportation services? There are two ways in which contributed or in-kind services are usually brought into a project. The first is through the specific contribution of a single agency. For example, one agency may provide office facilities by contributing a part of its existing office space. The second form of contribution is a more general one, which comes not from any specific agency but from a general funding source, such as a county or municipality or possibly a federal grant program. One common example of this type of contribution is the CETA program, which provides employment for personnel such as drivers or mechanics to support transportation services. This type of contribution is intended to benefit all participating agencies and must be considered accordingly in developing the billing rate.

In either case, a decision must be made as to the inclusion or exclusion of in-kind or contributed services in the development of project billing rates and revenues. In making this decision it is important to

differentiate between agency-specific and general contributions. For an agency-specific contribution, it is recommended that the billing rate be developed on the basis of equity: the agency making the contribution should receive a credit for a part or all of the value of the contributed service. This decision is one that must be made as part of the local level discussion on the development of rates.

With general contributions, it is likely that most participating agencies will want to exclude such contributions from the billing rate computation. If this decision is made, the revenues collected from agency billings will just match the anticipated cash outlays by the system. There are two problems with this approach. The first problem is that a reduction or complete elimination of the general contribution would automatically mandate a uniform increase in all billing rates in order to maintain financial equilibrium in the operation. This upward increase in rates, unless anticipated well ahead of time, would very likely be difficult for agencies to handle due to their continual budgetary pressures. The second problem stems from the fact that no coordinated transportation system can adhere exactly to budgetary projections for either expenses or revenues. Thus, if the balance of expenses and revenues resulted in a deficit, the project would either have to use up some of its existing working capital (which might be very limited) or increase the billing rates to the agencies. By using a billing rate that reflected total costs including contributed services, it would be possible to build up some reserve funds to bolster the working capital.

Thus, it is desirable for a transportation coordination project to develop billing rates on the basis of the total operational budget. Individual agency contributions can be credited against monthly bills for service, while general contributions can be used to develop the required working capital for continued growth of the coordinated system. Once a system has achieved stable operations and a level of working capital sufficient to handle cash flow needs, the billing rates can be adjusted downward to match revenues more closely to the actual cash expenditures of the system. The only situation that may call for a modified approach is one where general contributions provide a large share of the total operational expense. Participating agencies may be reluctant to be billed at a full cost rate when they know that the system does not require such high levels of revenue to meet expenditures. A modified approach, which would have to be agreed to by all participants, could use a compromise between the full cost rate and the actual cash expenditure rate.

A final consideration in the area of financing project operations is the variability of start-up expenses. The problem is how to accommodate the uncertainties of expenses when operations are building and growing. In general, the simplest means of accommodation is to estimate the costs initially and make refinements to the estimates as actual cost data become available. The question then arises as to when adjustments in billing rates should be made. If it is acceptable to the participating agencies, the rates could be adjusted quarterly for the first six months or year, depending on the size and potential risk associated with the project budget.* Once operations are stabilized, such adjustments could be made on an annual basis, with a high likelihood that the actual amount of the adjustment could be estimated well ahead of time.

A different approach, which is being considered in some projects as a means of avoiding deficits caused by rapid changes in costs and/or revenues, might be termed the "direct pass-through" billing strategy. By this strategy all project costs (including prorated fixed costs) incurred in a month are immediately billed out to the purchasing agencies on the basis of an agreed upon proportionate use of the services for that month. Thus, all incurred costs are directly passed through to the agencies on a direct basis. The major problem with this approach is that agencies are faced with the potential problem of highly varying unit costs for their transportation services. In a sense, this approach transfers all risks from the project to the participating agencies. Accordingly, it is unlikely that agencies would be willing to accept it unless they believed that they had a firm control over project costs. In a start-up situation, the approach might be acceptable for the first few months of operation to allow the participating agencies to closely monitor project costs, performance, and the subsequent impact on the billing to each agency.

In summary, the financing of project operations will require careful analysis and consideration by all participants in the implementation process. A major concern will involve the treatment of in-kind or contributed services as a part of the total revenue requirement for the project. If participants decide that the project should generate only enough revenue to meet direct cash outlays, they should be aware of the impact on their transportation costs if the in-kind or contributed services should become unavailable to the project. Various projects have had to deal with the problem in regard to CETA-funded positions, which are of limited duration.

* It should be noted that many agencies do not have the flexibility assumed in this discussion due to funding source or other constraints. The complexity introduced by such problems is beyond the scope of these guidelines and will be treated in subsequent technical documents. The basic approach outlined here should be followed to the extent possible, using the common sense of the participating agencies.

ESTABLISHING A BILLING RATE STRUCTURE

Once revenue requirements have been decided, the next step is to decide on the charges or billing rates for the service to be provided. There are three basic units of service to consider: one-way trips, trip mileage, and trip time. All of these basic units of service may be used, either individually or in combination, in computing a billing rate structure. The meter used in most urban taxis is a good example of the way that all of these units of service can be used for computing a charge for service. Starting the meter represents the trip unit charge; a mileage charge applies when the taxi is moving; and a time charge "waiting time"is added on when the vehicle is standing still.

The type of coordinated systems considered in these guidelines do not generally use a fare payment system. Instead, a monthly bill is sent to the purchasing agency for services rendered during the month. Therefore, it is necessary for the system to keep records of the units of service that they are using for billing purposes. This can lead to a complicated system of record keeping if all units are used. A number of operating systems throughout the country do collect all of this information, however, demonstrating that it is not an insurmountable problem. In fact, the best billing rate system is one in which all units of service are measured, because that system allows great flexibility in dealing with the needs of the different agencies that may be interested in joining the project over time. The measurements of the various units of service are also of direct use in the management information system, which is discussed later in this chapter.

Billing rates must be adjusted over time, depending upon the units of service provided. This is particularly true when a unit trip rate is selected. In order to develop the rate, it is necessary to estimate the number of trips that will be provided by the system, by using the planning analysis and the service design. This estimate of course, is subject to change as the actual operation develops. As an example, new agencies may begin to purchase trips from the system after the first few months, and the new trips may be added into the existing vehicle capacity on a very efficient basis. Thus, after a period of time, it may be possible to make an adjustment in the trip rate based on both the actual cost experience and the trips provided over a selected time period.

Before discussing the development of specific billing rates, several terms must be defined, in order to convey a clearer understanding of how the rates are developed and how various factors will influence the rates.

- *Passenger Service Hours (PSH).* The actual hours when vehicles are being utilized to transport clients.
- *Unutilized Vehicle Hours (UVH).* The hours when vehicles are not carrying passengers but a driver is on duty. In this instance the vehicle could be idle, deadheading, or assigned to administrative tasks.
- *Vehicle Hours (VH).* The sum total of PASSENGER SERVICE HOURS AND UNUTILIZED VEHICLE HOURS (VH = PSH + UVH).
- *Passenger Trip (PT).* A one-way trip; that is, one person traveling in one direction. Two people traveling in one direction equals two one-way trips; two people making a round trip equals four one-way trips.
- *Annual Trips (AT).* The sum total of all passenger trips in a 12-month period.
- *Productivity (P).* The number of PASSENGER TRIPS carried per VEHICLE HOUR (P = PT/VH).
- *Hourly Utilization Ratio (U).* The ratio of PASSENGER SERVICE HOURS to VEHICLE HOURS (U = PSH/VH).
- *Passenger Service Miles (PSM).* The actual mileage when vehicles are being utilized to transport clients.
- *Deadhead Mileage (DHM).* The actual mileage when the vehicle is not being utilized to transport clients. This includes deadheading and any other mileage accumulated on the vehicle when it is not carrying passengers.
- *Vehicle Miles (VM).* The sum total of PASSENGER SERVICE MILEAGE and DEADHEAD MILEAGE (VM = PSM + DHM).
- *Mileage Utilization Ratio (M).* The ratio of PASSENGER SERVICE MILES/VEHICLE MILES (M = PSM/VM).

The data and measures form the basis for developing billing rate structures. The three billing rate structures that can be used to recover operating expenses are defined below:

- *Trip Rate.* The purchaser reimburses the project on a cost per passenger trip basis. The trip rate can be uniform, regardless of distance traveled, or it can be based on trip length as represented by a ZONAL FARE STRUCTURE. In either case, the unit of billing is the passenger trip.
- *Hourly Rate.* The purchaser pays for each passenger service hour.

- *Mileage Rate.* The purchaser pays for each passenger service mile.

There is no "best" billing rate structure—each has its advantages and disadvantages. In selecting a billing rate, the implementation manager must bear in mind that agencies expect to pay only for services rendered. In this regard, the trip rate is perhaps the easiest rate to use, since it is simply based on units of service—the passenger trip. It is very easy to count up and justify the number of passenger trips provided to a particular agency by simply referring to the driver logs.

The hourly and mileage rate procedures require more detailed information in order to calculate the billings. In both cases, the basic factor—vehicle hours or vehicle miles—has to be used in conjunction with the appropriate utilization ratio. If the utilization ratio were not used and only vehicle hours or vehicle miles were used, then the coordination project would underbill the agency and the project would incur a deficit at the end of a given period. This would occur because vehicles are not in passenger service 100 percent of the time, and, in order for the project to recover all expenses, the unutilized vehicle hours or deadhead miles must be counted. Thus, the utilization ratios must be determined and used in these calculations.

Planning and data analysis will give the implementation manager an idea of the utilization ratios that can be achieved in a coordinated service. The choice of a billing rate should then be determined based upon the requirements of purchaser and provider agencies and their funding sources and the types of services being offered. In some cases, the use of multiple billing rates for various trip types (long distance, group trip, etc.) may be required in order to provide equitability among the purchaser, the provider, and the project.

Trip Rate Structure

The trip rate structure can be determined by dividing estimated annual operating expenses by estimated annual passenger trips, which will yield the average cost per passenger trip. By charging this average cost for each trip taken, the coordination project will, over the course of a year, collect enough revenue to exactly equal system operating expenses. If annual vehicle hours remain constant and productivity increases, then annual passenger trips will increase and average cost per passenger trip will decrease. Similarly, if productivity decreases, annual passenger trips will decrease and the unit cost per passenger trip will increase. In simple terms, the average cost per passenger trip is calculated as follows:

$$\text{Cost per Passenger Trip} = \frac{\text{Annual Operating Expenses}}{\text{Annual Passenger Trips}}$$

$$\textit{or} = \frac{\text{Annual Operating Expenses}}{(\text{Annual Vehicle Hours}) \times (\text{Productivity})}$$

A single uniform cost per trip may not accurately represent the true trip cost unless all trips are about the same length and take about the same amount of time. The inequity of a uniform trip cost structure is that longer, more expensive trips are billed at the same rate as short ones. If, for example, the trip rate was based on an average trip length of 5 miles per trip and 20,000 annual trips, and then the trip length increased to an average of 10 miles per trip while ridership remained constant, the project would incur a deficit. Thus, it may be preferable to create several different trip rates based on *geographic zones* in order to distribute more equitably the true costs associated with the service.

The use of zones makes it possible to develop a simple per trip rate that is easy to understand and yet reflects the length of the trip. Zones can be placed on a map and easily communicated to others so that they know the trip cost before traveling.

Hourly Rate Structure

The hourly rate is calculated by dividing the estimated annual operating expense by the estimated annual vehicle hours times the projected hourly utilization ratio, as follows:

$$\text{Hourly Rate} = \frac{\text{Annual Operating Expense}}{(\text{Annual Vehicle Hours}) \times (\text{Hourly Utilization Ratio})}$$

This calculation accounts for the fact that all available vehicle hours cannot be converted into passenger service hours. *The unutilized vehicle hours are therefore paid for by distributing their cost equally among all passenger service hours.* The range of values for hourly utilization ratios is very wide, depending on the specific operation. A low hourly utilization ratio (in the range from .3 to .5) indicates that the system is operating inefficiently, since many available hours are not being put into productive use carrying agency clients. At the upper end of the range, a ratio of .8 is about the best that can be expected, in view of the deadheading and administrative time that occur in most systems.

Determination of hourly rates requires that the system keep track of the time when a vehicle is in use

for a particular agency. Using the definitions given in these guidelines,* it is necessary only to keep track of the time when the first agency client gets on the vehicle and the time that the last agency client gets off. This is simple in most instances, since agency programs tend to have regular patterns of client use.

One factor that must be considered in an hourly rate structure is apportionment under ride-sharing conditions when the clients sharing rides are sponsored by different agencies. If the planning and service design indicate a high likelihood or potential for sharing, then this situation should be acknowledged by adopting a split-billing arrangement. Under this arrangement, for the time two agencies were sharing use of the vehicle, they would split the hourly rate; i.e., they would each be charged at one-half of the regular hourly rate. This procedure would require additional administrative effort in preparation of the bills. The alternative would be to simply bill each agency for the time that its clients used the vehicle, regardless of any simultaneous use by another agency.

Note that it may be possible to use a trip rate billing approach for situations in which ride sharing between different agencies is expected to take place.

*In these guidelines, passenger service hours are defined as excluding deadheading time. A more rigorous and equitable approach would be to allocate deadheading time to each agency; however, that approach would require very complicated calculations when numerous agencies use the vehicle in quick succession.

Mileage Rate Structure

The mileage rate is calculated by dividing the annual operating expense by the annual vehicle mileage times the mileage utilization ratio. This is expressed as follows:

$$\text{Mileage Rate} = \frac{\text{Annual Operating Expense}}{(\text{Annual Vehicle Mileage}) \times (\text{Mileage Utilization Ratio})}$$

As with the hourly rate calculation, this calculation accounts for the fact that all available vehicle miles cannot be converted into passenger service miles. The use of a mileage rate requires that a record be kept of the use of the vehicle based on the mileage provided to each agency. The mileage rate is very similar to the hourly rate in that it requires logging the vehicle mileage when the first agency client gets on the vehicle and again when the last agency client gets off. Similarly, the problem of clients from different agencies using the system in ride sharing must be addressed as it is under an hourly rate structure (see above).

One of the advantages of a mileage rate over an hourly rate is that more individuals are familiar with the concept of a mileage rate and, therefore, may find it simpler. Also, a mileage rate makes it easier to calculate charges, since the mileage is approximated by the origin-destination information for each of the client trips. The zone fare structure discussed above (see Trip Rate Structure) is basically an attempt to build a mileage consideration into the rate. There is an important distinction, however: the mileage rate discussed here is always based upon actual mileage, whereas the zone fare reflects only the origin and destination and not the actual mileage.

Sample calculations for the various billing rates, using a hypothetical set of data, are contained in Appendix E.

Use of Appropriate Billing Rates

Because the use of one billing rate may not be suitable for handling all types of trips, it is important that the implementation manager develop a unit cost based on several billing rates and specify, based on the services offered, when each rate is to be utilized. This procedure will ensure that the project recovers the cost of providing the service. In addition, the implementation manager should define specific time periods (at least every six months and preferably every three months) when system performance is to be measured and evaluated. Changes in productivity,

hourly and mileage utilization, ridership, vehicle hours, and vehicle miles may occur. Depending on which way these factors change (increase or decrease), the project may either be recovering more than its operating expenses or losing money and creating a deficit. Monitoring these factors and making appropriate changes to the various rate structures will ensure that over time the revenues of the system will equal operating expenses.

The exact method for using the billing rates varies with the design concept(s) that are implemented. The billing rate structures previously discussed are adequate for use in such concepts as operations clearinghouse, centralized dispatching, and total coordination. For concepts such as information and referral, parts purchasing, maintenance, and administrative coordination, other means of billing for services will be required. The following discussion defines various methods of billing for each of these concepts. These methods are based on actual experiences of the HDS demonstration projects and other coordination projects. They are intended as guides to the implementation manager—not as an exact set of rules to be followed.

Operations Clearinghouse. The method of billing for an operations clearinghouse is based on the use of the trip rate, hourly rate, mileage, or a combination of all three. The coordination project has two options available to it in the use of these rates. The first is to bill each provider agency at its actual cost; the second is to bill at a uniform rate.

Billing each agency at its own rate ensures that the actual cost of each unit of service is recovered through revenues. However, use of this approach is complicated in terms of billing and record keeping, and it requires the operations clearinghouse to prepare multiple billing at various rates. In some instances individual agency billing may be necessary due to constraints placed on the project by funding sources (e.g., reimbursement occurs only at the actual cost of the service).

The other option—billing at a uniform rate*—can be approached in two ways. The first way is to bill all agencies at the rate of the highest-costing provider agency. This eases the paperwork for the clearinghouse but means that many trips are purchased at rates above the actual cost of the service. The excess revenues must then be counted and either redistributed to the purchaser agencies or used for other services. The second way is to bill at the level of the 75th percentile of all provider costs. This method is used frequently by Title XIX and has been found acceptable in many areas.

Perhaps a more suitable approach would be to utilize individual agency rates for a six-month period, evaluate the distribution of trips among each provider, and establish a uniform rate. Conducting this type of rate review at a time when all performance indicators are evaluated should yield an equitable rate structure.

It should be noted that regardless of the billing rate structure or the approach to billing, the cost of the clearinghouse operation *must* be added to the unit billing rate. Since the clearinghouse only benefits agencies that purchase transportation, the cost of the clearinghouse should be distributed among them. Costs can be simply distributed based on the number of trips provided to each agency.

Centralized Dispatching. Centralized dispatching requires the use of a uniform billing rate because trips are scheduled on vehicles regardless of agency affiliation. Therefore, the assignment of a trip to a specific agency vehicle is unknown at the time the request for service is made. Thus, the uniform billing rate should be developed according to the methods presented for the operations clearinghouse.

The cost of the central dispatching must be distributed between provider and purchaser agencies. Since both provider and purchaser agencies will benefit from this concept, the cost should be distributed equally between the two types of agencies. Provider agency costs can be determined by simply taking one half of the cost of the central dispatching function and dividing it among the providers. Each provider can be billed on a monthly basis for this cost. An alternative method for billing provider agencies would be to distribute the cost based on the number of vehicles each provider dispatches through the central dispatching office.

Purchaser agency central dispatching costs should be distributed based on the number of trips each purchaser schedules through the central dispatching office. The planning and analysis conducted as part of the concept selection process will indicate the number of trips that would be scheduled by the purchasers. The cost of central dispatching is then divided by the total trips, and the unit cost is added to the monthly billing for each purchaser agency. (Although this example is based on the trip-rate billing structure, the cost could also be distributed based on the hourly rate or mileage rate.)

Total Coordination. Billing for total coordination can occur only under a uniform billing rate for all agencies. Once the total system operating budget (expenses) has been developed, basic cost recovery factors can be estimated for the trip rate, hourly rate,

*The concept of a uniform rate means that all purchasing agents will pay the same rate for an equivalent service. It does not mean that only one type of rate structure can be used.

mileage rate, and any combination thereof. Adjustment to these rates can be made based on actual experience with productivity (trip rate) and utilization rates (hourly and mileage rates) to ensure that all expenses are recovered. At this point, various types of trips can be assigned a specific rate structure so that all agencies realize how they will be billed for services. In addition, zonal rates may be established if the trip rate is being used.

Information and Referral. Information and referral is perhaps the easiest to bill. All costs (if any) associated with the concept are equally distributed among all participating agencies.

Parts Purchasing. The expenses associated with parts purchasing are based primarily on the costs of the parts that are purchased. Each agency simply reimburses the supplier for the cost associated with the items purchased. Any costs incurred for administration should be equally distributed among participating agencies.

Maintenance Coordination. As with parts purchasing, the expenses incurred as part of maintenance coordination are distributed among participating agencies as a function of the work performed on their vehicles. These costs are defined in maintenance contracts (refer to Appendix D for sample contracts). If maintenance were contracted to an existing garage, these would be the only costs associated with the concept. If a new maintenance facility were established as part of the concept, then these expenses would be factored into the cost structure and distributed among participating agencies based on the amount of work performed for each agency. Monthly billing rates should be developed for these expenses.

Administrative Coordination. Administrative coordination refers to the performance of specific administrative/management tasks for agencies. Therefore, the distribution of costs associated with this concept can be based on a predetermined level of work or the performance of work on an as-needed basis. If work is predetermined, a contract should indicate the cost of this effort and the means by which agencies will reimburse the project. Uncontracted work should be reimbursed based on the actual labor rate and the amount of labor utilized plus material costs and any overhead.

This information, coupled with that on budgeting and billing rates, is sufficient for the implementation manager to develop reimbursement rates for various types and levels of coordination. The final determination of appropriateness will have to be based on agency needs and the requirements of funding sources.

MANAGEMENT INFORMATION SYSTEMS

A management information system (MIS) for the coordinated transportation system referred to in these guidelines is simply an organized approach to the collection, analysis, and reporting of data about services and costs. The MIS is a key management tool for maintaining a sound coordination program, enabling the project director, policy board, and participating agencies to achieve the following:

- Monitor the financial and operations performance of the system and make necessary adjustments (as possible) to keep the system in conformance with expectations.
- Provide the basis for periodic adjustment of billing rates to assure the system does not run into a deficit position.
- Form the basis for quantifying the results of the coordination effort.

In order to provide adequate management information, the data inputs to the MIS must contain both financial and operations performance information. Billing to agencies for services provided should be a direct output of the MIS, which can form the basis for the billing.

The complexity of the MIS is highly dependent upon the complexity of the coordination project. In the simplest of contract arrangements, the contract itself serves as a measure of performance and specifies the basis for billing. As an example, a joint purchase agreement will spell out what is to be sought, in what quantity, and at what price. The delivery of the items, along with the bill, constitutes both the operations summary and financial accounting for the purchase.

In an information and referral program, the participants will usually not be billed according to the number of referrals made but rather on a lump sum basis. Although a financial report would be superfluous for an I&R center, an operations report would be most useful to assess the performance of the center. The report could include the following information:

- Total number of calls received
- Number of referral calls received
- Number of calls for information only—no referral required
- Types of requests
- To whom the caller was referred
- Follow-up results of the calls—percentage of successes

Use of a simple record keeping system, on a monthly basis, would provide the participating agencies with an indication of both project success and project weaknesses. For example, some agencies may not be getting any potential callers, while others may be overburdened with calls. Information requests may all be on one subject that needs more attention by the agency heads. Use of the qualitative information could lead to new strategies to increase the use of the center. Again, no billing records would be required for this service.

When the performance of the program and the billing rates are based on the volume of provided services, the MIS becomes more complex. In such cases, the contracts may specify rates on a per client, per mile, or per hour basis, and it will be essential to have an MIS that provides measures of both the quality of the services received and the quantity to be billed to each participant.

An example of a somewhat more complex MIS would be the system required for an operations clearinghouse. Again, there would be a monthly performance record of calls received, service requested, and disposition of the call (including those trips which could not be matched). However, attached to each call would be an actual trip arranged by the operations clearinghouse itself (in contrast to the information and referral concept, which makes no arrangements). Therefore, a separate financial accounting would also be maintained, indicating at least the following types of information:

- The number of trips purchased by each agency
- The number of trips provided by each agency
- A billing statement for each agency, showing the trips purchased and provided, with the net difference in trips used to establish either a credit or payment due

A similar arrangement would be required for contract maintenance services. Each agency would agree in advance to rates for the performance of routine preventive maintenance and for repair jobs. The billing at the end of each statement period (monthly) would depend upon the number of jobs actually performed on each vehicle. By the same token, each purchaser agency also would want to be assured that the level of performance was adequate and that each vehicle was being maintained properly. The monthly system performance record might indicate the following about each vehicle, including both performance and cost information:

- Number of miles traveled by each vehicle
- Number of routine maintenance checks performed
- Other repair work
- Gasoline consumed
- Oil consumed
- Total cost for maintenance

This simple record, produced monthly for each agency, would provide an indication of the performance of each vehicle, which in turn could be used in determining future vehicle needs.

MIS Involving Dispatching Records

The most complex MIS records would be kept for those agencies that perform central dispatching, either as an individual concept or as part of a total coordination project. A model MIS for such a system is described in the following paragraphs and display figures. Note that this is only a *model* MIS, and significant modifications are likely to be needed to reflect local data needs and service characteristics.

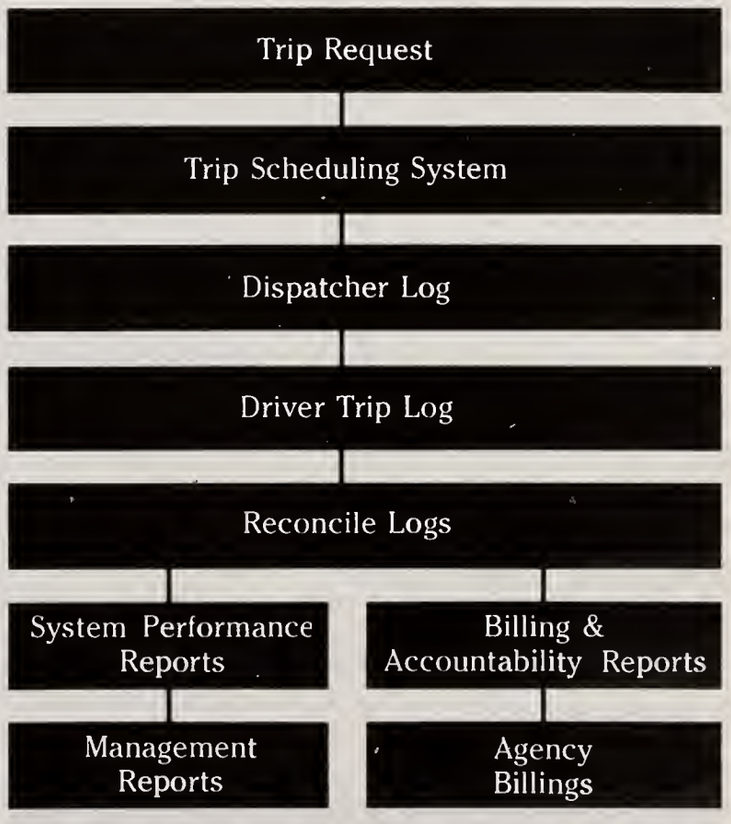


FIG 24. MIS Data Flow.

Figure 24 shows the suggested flow for such an MIS, from the initiation of a service call to the completion of the MIS records. The intermediate records—request logs, dispatcher logs, and client record sheets—have been described earlier as they apply to system design. These are some of the data forms from which the MIS records will be produced, with the dispatcher log being of primary importance. At the conclusion of each working day, the dispatcher will reconcile his log against the actual driver trip logs, to account for any cancellations or no-shows. The appropriate information from the dispatcher log will then be forwarded to the billing clerk/bookkeeper for entry into the billing component of the MIS, or to the transportation manager for inclusion in the performance report.

The billing process for the model system is based on the use of a uniform format for billing each agency. This simplifies the procedures of both billing and record keeping and facilitates preparation and interpretation of the bill. For purposes of simplicity, this bill is designed for a system that uses only a trip rate structure.

In order to prepare the bill, the following minimal data will have to be collected for each trip provided:

- Passenger's name
- Agency affiliation
- Billing rate
- Number of trip units
- Date of trip
- Special charges

It is expected that the substantial verification provided by trip scheduling records and the dispatching procedure will provide the necessary program accountability required by the purchasing agencies.

Summary Performance Report. The performance report is the key management tool for monitoring and evaluating the system. A sample report that summarizes system performance is shown in Figure 25.

The first group of data elements (see definitions above) are those associated with *demand* for services:

- Passenger trips
- Passenger service hours

The next two data elements are key indicators of the amount of service *supplied* by the system:

- Vehicle hours
- Service miles

The overall costs of providing the service and the revenues derived from agency billings are shown as the next key summary data on this report.

The next series of ratios, which appear in Figure 25, are measures of overall system performance. Because those measures are affected by some of the same key data elements, it can be anticipated that when performance is off from that predicted or expected, it will show up in more than one measure. Because the performance measures selected are in fairly common use among agency transportation systems, it will be simple for managers to compare their system's performance to other similar systems.

The key ratios are presented in the summary report in a format that makes it easy to compare them to performance on a previous year for the same period. The cumulative performance figure is included to determine adherence to projected or budgeted values. The system management should always examine the reports to identify any significant deviations from projected performance, especially in regard to cumulative figures.

Some perspective on the use of the ratios in a typical project situation can be developed through consideration of the following: The most significant ratio for management control is the *recovery ratio.* If this is below the budgeted value, then the system is heading into a deficit situation, which must be corrected as soon as possible. The first step is to examine the *cost per hour ratio* to determine if the service is being supplied at the expected cost level. If the cost per hour is above that anticipated, it is necessary to go to a more detailed management information report, as presented later in this section. If the costs are in line, then the next step in trying to identify and correct the problem is an examination of the *hourly and mileage utilization ratios.* If either or both of these ratios are below the projected figures, it indicates that there may have been a change in demand patterns or dispatching system performance that has adversely affected the system. This will require a more detailed examination of the operational data to make before- and-after comparisons to help identify the reasons for the drop-off in utilization. The remaining key ratios are *productivity* and *miles per trip.* These will have already been affected by changes in the other ratios; however, it is important to observe the combined effects that result from such changes. Both of these ratios are important for making comparisons to other systems.

The next portion of information on the report refers to all subcontracted services. If a taxi subcontractor (or other operator) is used, the volume of trips must be counted. This will be handled by recording all subcontracted trips as part of the final trip sheet that goes into the billing system and the MIS system. The cost per subcontracted trip will be the agreed upon charge for the service as described in a contract between the coordination project and the subcontrac-

SUMMARY SYSTEM PERFORMANCE REPORT	Current Period	Last Year	Cumulative	Anticipated Budget
DEMAND				
a) Passenger trips				
b) Passenger service hours				
c) % of trips by agency clients				
SUPPLY				
d) Vehicle hours				
e) Vehicle miles				
f) Passenger Service Miles				
COSTS				
g) Operating cost				
REVENUE				
h) Revenue				
KEY RATIOS				
Productivity (a/d)				
Hourly Utilization (b/d)				
Mileage Utilization (f/e)				
Miles per trip (f/a)				
Cost per trip (g/a)				
Cost per hour (g/d)				
Recovery ratio (h/g)				
Subcontracted trips				
% subcontracted trips/agency				
Cost per subcontracted trip				
Revenue per Subcontracted Trip				
Recovery Ratio				
Total Trips				
Average Cost per Trip				

FIG 25. Sample Performance Report.

tor. The recovery ratio for the subcontractor will be a separate calculation to determine whether it is cost-effective to use the subcontractor. If it is more cost-effective, then the dispatching strategy should be changed to reflect increased use of the subcontractor. The final items on the report refer to the total number of trips provided by the system.

Detailed MIS Report. Detailed MIS reports that will complement the summary performance report should also be developed. These reports, intended to describe overall performance in greater detail, should be used to help pinpoint problems that were identified in the summary report.

The major detailed category of data is that of costs. There should be a basic breakdown of costs for the three major components of the operation: drivers, maintenance, and administration. It is proposed that all three cost elements be presented in terms of an hourly cost figure. The hourly base figure to be used is vehicle hours. This approach will provide a sense of comparability and scale that is not available from looking at the gross costs alone. The total costs

should be allocated in accordance with the following:

- *Driver costs.* All costs associated with the drivers, including salaries and fringe benefits.
- *Maintenance costs.* All costs related to the upkeep of vehicles, including expenses associated with operating the maintenance facility.
- *Administrative and fixed costs.* Includes all supervisory and dispatching staff salaries and benefits and all fixed costs such as telephone service, office space, and supplies and equipment. Insurance costs for the vehicles would also be included in this category.

Summary. The development of an MIS for a transportation coordination project should be approached with a great deal of care. The important point to remember is that each piece of information that is requested as an output of the system may require additional, and possibly complex, data collection efforts. The above materials provide a very brief overview of the basic elements in developing an MIS. Whenever possible the implementation manager should seek the advice of local resource persons who are familiar with MIS systems development, particularly as their experience relates to transportation programs.

REGULATORY AND INSURANCE CONSIDERATIONS

A key aspect in the planning and operation of any transportation service is the knowledge of, and compliance with statutory regulations. A review of the legal and regulatory issues involving transportation projects indicates that significant regulatory requirements exist at the state level regarding licensing, operating permits, and insurance. The failure of many projects to recognize these regulations has led to expenditures on legal fees, start-up delays, and even project termination. Many of these problems can be eliminated if they are addressed adequately in the implementation process. Thus, it is incumbent on new and emerging systems to have a thorough knowledge of state regulations and to seek assistance from state regulatory agencies.

STATE REGULATORY REQUIREMENTS

Some state regulation of transportation services has led to the imposition of severe constraints on the implementation and operation of transit systems. In many cases, planners have been ignorant of state laws and have not planned systems properly, which has resulted in long delays or system failure.

Thus, a key step in the implementation process is to become knowledgeable about the state's regulatory environment and not be afraid to seek assistance from the state public utilities commission (PUC), public service commission (PSC), or department of transportation (DOT).

Although the primary regulation of transportation services will emanate from these agencies, complementary regulations will also be required by motor vehicle, public safety, and other agencies.

Primary Regulation

The primary regulator of transportation services should be identified during the implementation period. Contact should be made with the agency, and a copy of the regulations should be obtained.

The primary regulation of transportation services refers to requirements prescribed by the PUC, PSC, DOT, etc. The aim of these agencies is to protect the public's interest while providing an economic and efficient transportation service. These agencies usually have regulatory control over various forms of transportation, including passenger transportation and transportation of property and packages. In some states these agencies regulate taxi operations, while in others a service is not regulated unless the vehicle maintains a certain minimum seating capacity. Many states regulate all passenger services, while others do not regulate municipal operations. Because there are so many subtle differences in state regulations, it is important to find out what services can and cannot be operated.

Regulatory status depends upon the legal status of the coordination project and the type of service offered. Traditionally, state PUCs or PSCs have regulated all private-for-profit transportation companies, especially bus companies. Regulation, which began generally in the 1920s or earlier, is usually worded in terms of fixed-route operation. Private operators of fixed-route service must obtain a "certificate of convenience and necessity," or similar document, to operate a service.

Most human service agencies that operate independent transportation programs have escaped regulation through a clause that excludes the "occasional or reciprocal provision of service." This clause or exclusion is found in several states and has been interpreted to mean that transportation service provided by human service agencies is an ancillary service to the agencies' prime service and thus cannot be regulated. A number of states have extended this definition to include coordination projects that use ride-shared and time-shared vehicles and those that are totally coordinated.

An example of this use of the exclusion clause occurred in the Westchester County (NY) HEW demonstration project. The program director was misinformed that the project would have to acquire a regulatory permit to provide coordinated ride-sharing and time-sharing services to agencies in the county. Without consulting the appropriate regulatory agency, they filed for a permit to operate "common carrier" services. A hearing was conducted to review the application, and a ruling was issued (NYSDOT—Regulatory Division, Case No. 28655, March 28, 1978), stating that this was "occasional and reciprocal" service and as such did not require a permit. This was a small victory, since legal fees had exceeded $1,200 and the project was inoperable for six months.

It should be noted that if a project provides transportation service to a non-agency-affiliated person and/or charges a fare for the service, then in some

cases the exclusion does not apply and operating permits must be obtained.

Complementary Regulation

Complementary regulations result from the classification of a service by the PUC. Once the service has been classified (or if it does not fall under the jurisdiction of the PUC), then driver licensing, vehicle licensing, and vehicle safety inspection procedures can be addressed. These requirements are generally established by the division of motor vehicles or the public safety department.

Driver licensing requirements generally depend upon the type of vehicles being operated and, sometimes, the client group being transported. The department of motor vehicles bases driver license categories on the weight classification of the vehicle. Most vans and minibuses (fewer than 18 passengers) do not require a special license classification, but it is usually best to require all drivers to have a chauffeur's (or similar) license. This will enable them to operate vehicles that are larger than those that most agencies normally operate.

Driver regulation may also occur as a result of the type of passengers transported. In many states, the department of health requires that drivers who transport invalid or disabled persons for medical purposes be trained as emergency medical technicians (EMT). With this training, the driver will be able to administer more than basic first aid to a client if the need arises. Many states now require that any person transported for Title XIX services be transported in a vehicle where there is an EMT on board as either a driver or attendant. Thus, if Title XIX transportation is to be a component of the project, then the department of health and Medicaid requirements should be investigated.

Vehicle licensing, like driver licensing, is usually contained under the jurisdiction of the department of motor vehicles (DMV). This department will classify the license by the type of services provided and assign appropriate licensing fees. In most cases, the license is classified by the PUC ruling on service type, but in other instances the department may make its own ruling. Therefore, it is incumbent on the implementation manager to relate the PUC ruling to DMV so that proper licenses are received. Improper licensing can lead to two negative impacts: (1) increased insurance premiums and (2) high license fees, sometimes exceeding $100 per vehicle per year.

Vehicle safety and inspection requirements are usually handled through the DMV or public safety department (PSD). These regulations may define specifications for various size vehicles and define safety equipment that must be carried on the vehicle.

INSURANCE

The area of regulation with perhaps the greatest impact on operations is insurance. Project problems with insurance stem from the fact that the insurance industry has difficulty responding to the special needs of human service agency transportation programs. These problems often result in increased premiums, misclassification, difficulty in obtaining coverage, or cancellations.

Insurance often imposes restrictions that can make the operation of the transportation service more expensive. Examples of restrictions that may be imposed include the following:

- Restriction of drivers to certain ages
- Prohibition on charging fares
- Prohibition on transporting of nonclients
- Prohibition on time-shared vehicle use
- Restriction on driver assistance to passengers

Some of these restrictions can be easily avoided by simply altering the system operations. For example, it is possible not to charge fares or transport non-agency-affiliated clients. However, it may also be possible to find insurance companies that will adapt their policies.

A major factor in insurance consideration is the driver selection and training process. The safer the driver, the safer the system, and the lower the insurance costs. HDS has on-going research in the areas of driver selection and training. The preliminary findings indicate that driver selection is the important first step followed by driver training in the areas of general driving, accident avoidance, passenger assistance, human relations, first aid, non-medical emergencies, and overall transportation operations.

The high cost of insurance is another problem that confronts most operators. Although no one solution

exists to this problem, the implementation manager can take the following actions:

- Learn about and thoroughly understand the whole concept of insurance: what it does and what it does not do.
- Shop around. Do not be put off by insurance companies who do not understand agency transportation and therefore want to misclassify the project and place it in a high-risk category.
- Whenever possible, seek insurance under a municipality that insures a large fleet of low-risk vehicles.
- Develop an insurance cooperative on a state or regional basis to purchase insurance.
- Be aware that regulatory permits and/or charging of a fare (or the appearance of fare charging) may cause the insurance company to reclassify the project in a more expensive rating category.
- Be aware of restrictions on driver age (e.g., not below 25 or above 65). Institute a careful and thorough driver screening, selection, and training program.

Recent work by the Insurance Services Office (ISO) of New York State has resulted in two new nationwide insurance programs of special interest to social service agencies involved in transporting clients. The ISO is a private nonprofit organization supported by the insurance industry to assist in collecting and analyzing accident and loss statistics and developing rate categories. State offices of the ISO file rates and service classifications with each state's insurance commissioner, who must then approve the rates prior to their use. The two new programs affecting social service agencies are as follows:

- First, the industry (through the Insurance Services Office) has set up a new insurance classification for social service agencies that covers vehicles used by a government entity, civic, charitable, or human service organization to provide transportation. Transportation services sponsored by the private sector—religious groups, community, civic, and charitable organizations—are also affected. This new classification is for liability insurance that covers vehicles whether owned by, contracted to, operated for, or leased to the agency/organization.
- Secondly, new programs have been devised to provide excess liability insurance for both the agency and the vehicle owner where vehicles owned by full-time agency employees part-time employees or volunteers are used to transport program beneficiaries. The policy would cover both the volunteer or employee, and the agency, for up to one million dollars at a very low rate—approximately five dollars a year.

These two programs have been filed directly by the ISO and were effective October 1, 1979, in most states. In each state individual insurance companies may also make independent rate filings. Thus, rates may vary among different companies.

FINAL AGENCY CONTRACTS

An agency contract (or agreement) should be drawn up prior to the start of service. The contract is a legal document stating what service the participating agency will receive from the coordination project and what resources the agency will contribute. Thus, the contract theoretically protects both the participating agency and the coordination project. Contracts or agreements may also be drawn up with any private firms involved in the projects, such as providers of transportation and parts suppliers.

GENERAL CONTENTS

The general contents of the contract may include any or all of the following nine elements: introduction, term of contract, scope of services, compensation, protection of parties, reporting, modification signatures, and appendices. These elements are discussed below.

Introductory Paragraph(s). The introductory portion of an agreement should include:

- Official names of contracting agencies
- Contractual relationships
- Purpose and intent of agreement
- Definition of terms

As with most legal documents, official names are recommended to avoid any confusion. The contractual relationship should state which agency is to provide a service and which agency is to receive a service. Terms such as "contractor," "purchaser," "provider," etc., are recommended to designate clearly the responsibility.

The purpose of the contract should be stated initially. The statement of purpose should explain briefly what the contract represents. In addition, the purpose of the coordination project should be stated.

A final optional part of the introduction is a definition of any technical or special-meaning terms contained in the contract. For example, the distinction between vehicle hours (total hours operated by a vehicle) and passenger service hours (hours operated by a vehicle while carrying passengers) should be made clear.

Term of Contract. This *term* of the contract refers to the period of time that it covers. The expected date of the beginning and termination of the contract should be stated. In certain cases an exact date may not be specified, but duration of performance may be used.

Scope of Services. In this part of the contract, the specific services to be performed are explained. For example, the performance of specific tasks such as dispatching, billing, or purchasing should be assigned to the proper agency. In addition, the leasing of vehicles or change in vehicle title should also be specified in this section.

Compensation. The section on compensation delineates the amount to be paid for services and the method (i.e., payment reimbursed or the prepayment). The unit costs of compensation for transportation services may be based per hour, per mile, and/or per passenger charges (see Chapter 4). For items purchased in bulk, the cost of the goods should be specified. Lump sum payments are another method that could be used depending upon individual circumstances.

The compensation section may also include a plan for the auditing of project records. Although this statement is optional, the contractor may want to reserve the right to audit the financial records of the transportation service.

Protection of Parties. A contractual relationship puts a burden on the parties to meet specified conditions. If one party fails to meet these conditions, the other parties to the agreement may be adversely affected and possibly held liable for the failure of that party. In some cases "hold harmless" clauses should be made a part of the contract. For example, if an agency is contracting for transportation services with an outside party, the agency should be contractually protected from a failure of the transportation contractor. This clause may not, however, always protect the agency, and legal advice should be sought when developing the agreement.

Reporting. Certain information will usually be required for the monitoring of operations. This information includes hours of service, miles of service, passengers, revenue, and costs. In an agency agreement, a general statement such as "agrees to provide all data relevant to the project" may suffice. Where possible, though, specific data to be provided should be listed.

Modification. The contract should include a short statement specifying the conditions under which a party can terminate the contract, either with or without cause, and the procedures for amending the contract.

Signatures. Naturally, all contracts must be signed by authorized officials or agents of the contracting parties.

Appendixes. Appendixes, or addenda, to the contract may or may not be needed, depending on the description in the scope of services. For example, if the scope of services states that one party agrees to operate a van, an appendix could describe the hours of van operation.

SPECIFIC CONTRACT AGREEMENTS

A number of agency contracts taken and modified from HEW demonstration sites are appended to these guidelines. The contracts illustrate how the general guidelines can be used. Three examples were chosen to represent several types of contracts:

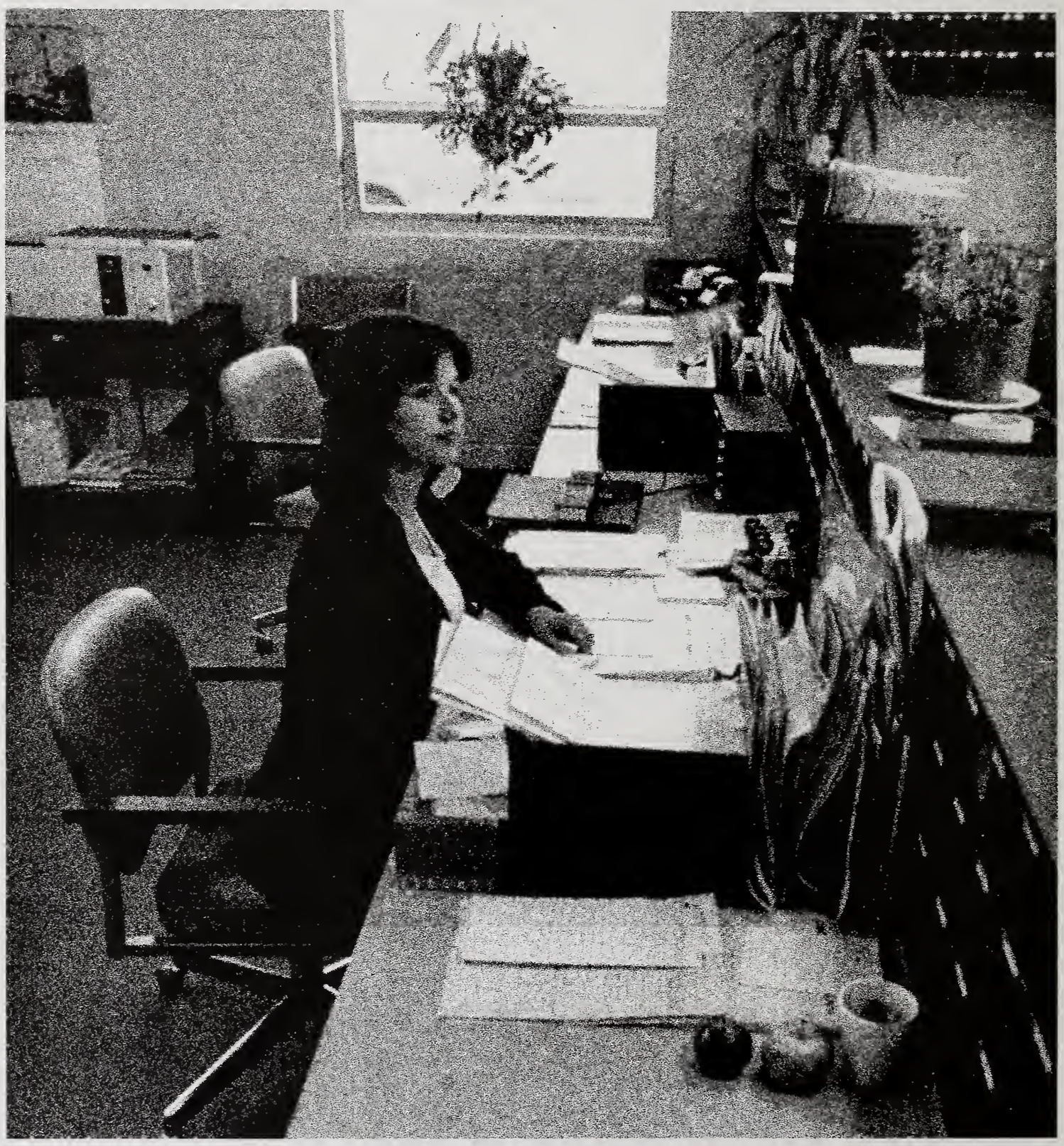
- An operations clearinghouse contract
- A total coordination contract
- A coordinated maintenance contract

Appendix B contains a sample agreement devised from the demonstration program for an operations clearinghouse. Included is a set of definitions of the terms used in the agreement. The contract is for both a provider and a purchaser of services. The contract contains an extensive preamble (Part I) stating the goals and objectives of the program and a set of general clauses (Part II) pledging mutual cooperation in the venture. Part II, Section B, contains the relevant clauses pertaining to the operations clearinghouse—the level of participation, the types of activities covered, and the roles of the clearinghouse and the purchaser and provider. The examples do not include exact cost arrangements, which could appear. Parts III to VI contain standard clauses enacting the contract, procedures for modification or termination, and signatures.

Appendix C contains another sample contract derived from the demonstrations. This contract is for a total coordination project and describes the services, billing rates, and procedures that would be used to provide all transportation services to the participants. The appendix also includes a lease agreement that could be used to turn each provider agency's vehicles over to a totally coordinated system. The second document is a simple letter contract used between a program and each purchaser agency.

Appendix D is a contract between a coordination project and a program providing centralized maintenance. The maintenance program, having the garage facilities, agreed to provide all maintenance to the coordination project, as described in the addenda to the contract. The agreements set rates, described all services, and included provisions to ensure quality performance satisfactory to each party.

HIRING THE PROJECT STAFF



Staffing the coordination project with qualified personnel is the key to the successful operation of coordinated services. The implementation manager must give much thought and attention to finding the right people for the organization. Project staff must be carefully selected to minimize turnover during the first few months of operation. This will ensure the project a smooth transition from planning and implementation to actual delivery of services.

The size of the project staff will be a function of the organizational structure and the design concept. Chapter 2 defined various organizational structures that may be implemented and identified the number of staff positions required for specific functions. Guidelines for determining the number of dispatchers, schedules and call takers were presented in Chapter 3. The implementation manager will have to use these guidances to clearly define the staff requirements for a particular project. Other staff positions, such as secretaries and bookkeepers, can be defined based on the requirements of the design concept. The number of drivers and mechanics needed will depend on the number of vehicles in operation and the service hours of the project.

One of the overall objectives of coordination is to reduce the duplication of services being offered. It should be understood that in order to accomplish this, job positions at some agencies may have to be eliminated or agency personnel assigned to the project. The implementation manager should strive to employ qualified personnel from other agencies in the project before proceeding to hire staff from outside the agencies.

The time period allotted to the hiring process is based on the design concept and the number and types of staff positions that must be filled. As discussed in previous chapters, such design concepts as maintenance, purchasing, and information and referral will not require new personnel but only a transfer or reassignment of responsibilities to an existing individual at a particular agency. In these instances no need may exist to allocate time to hiring. As the complexity of the concept increases from operations clearinghouse to total coordination, the hiring period will increase. Likewise, the need to hire outside personnel will also add to the length of the process.

For a totally coordinated project the *project director* (executive director) should be at work three months prior to the start-up date of services. This will allow him/her to establish office and operating policies and to hire other staff in a timely manner. A secretary should be hired by the director. The director should then hire a transportation manager, who should be at work two months prior to the start of operations. Dispatchers, mechanics, drivers and call takers should be at work at least two weeks prior to the start of operations, to undergo appropriate training and to familiarize themselves with the operations of the service. All personnel should appear for personal interviews and submit other screening procedures prior to selection.

In order to hire qualified staff, advertisements for positions should be placed in local newspapers and, in some cases (executive director and transportation manager), in national publications (see Fig 4). Job descriptions should be developed by the implementation manager so that each potential candidate is aware of his duties. At a minimum, the job descriptions should include position title, minimum qualifications/experience, and duties/responsibilities. In addition, the salary and fringe benefit package should be made known to potential candidates. This process will ensure that qualified personnel are hired for the project and that there is a smooth transition from implementation to operations. Sample job descriptions for various staff positions are presented in Appendix A.

CONCLUSION

Completion of the above implementation activities will culminate in the operation of the coordination project. Some projects will complete the implementation process ahead of their expected schedules; others may find that the process takes longer than anticipated. It is critical that each implementation activity be addressed locally and that all issues be resolved prior to the initiation of operations.

The start of operations may not go as smoothly as anticipated, even if one follows all of the planning and implementation guidelines. All plans have some margin for error, and the best transportation programs have flaws in their initial days of operations. The project director must be prepared to deal with these problems as they arise and to take swift action to resolve them. In addition, the start-up of operations will also help pinpoint those areas where demand exceeds expectations, and where successes must be met with additional services.

It is our hope that through the use of the planning and implementation guidelines the problems of coordination will be minimized, leading to the successful nationwide development of local coordination programs.

APPENDIXES

APPENDIX A: Sample Job Descriptions

EXECUTIVE DIRECTOR: Responsible for the guidance and operation of the transportation system.

Minimum Educational and/or Experience Qualifications: Graduation from an accredited college or university with a master's degree in public or business administration. Three years of experience in the field of management and/or transportation may be substituted for the master's degree.

Specific Responsibilities:

1. Supervision of all office and operating affairs of the agency so that a smoothly functioning organization is established within the framework of the budget and the interests of the participating agencies.
2. To meet regularly with the policy board and advise them of the daily operations and financial status of the project. Further, to work with the board to formulate and implement new policies that will benefit clients served.
3. Preparation and presentation of an annual budget and a long-range budget, and identification of funding sources.
4. Preparation of grant applications.
5. Maintain all contacts with other agencies as it relates to service, contracts, negotiations, etc.
6. Direct a public relations program with other agencies and the general public so that all are informed as to the activities, the services, the aims and objectives of the project.
7. Manage all personnel matters so that maximum efficiency is attained.
8. Employment of, or approval of the employment of, persons within the budget constraints. Likewise, the disciplining of employees when necessary and the release of employees because of budget constraints.
9. Other responsibilities as enacted by the board and advised by the chairman.

TRANSPORTATION MANAGER: Supervise the operation and maintenance of an efficiently effective fleet of vehicles for the transportation of handicapped and disadvantaged persons. These responsibilities are to be carried out in accordance with good business practices and guidelines as set forth by the executive director.

Minimum Educational and/or Experience Qualifications: A bachelor's degree from an accredited college or university or completion of two years of college and two more years' experience in the field of transportation operations.

Specific Responsibilities:

1. Supervise the dispatchers so that they schedule the most effective routes within the constraints of the client's destination and the availability of vehicles.
2. Supervise the mechanical staff so that the fleet is operational and mechanically efficient at all times. Coordinate the issuance of fleet-related purchase orders and arrange purchases for the fleet operation and maintenance.
3. Employ discipline and/or dismiss dispatchers and drivers, consistent with appropriate policies and practices.
4. Ensure that the drivers' log and time records are accurately completed and submitted at the close of each day's operation.
5. Ensure that the dispatchers' logs are accurately completed and submitted in a timely fashion to facilitate the agency billings.
6. Monitor and improve vehicle utilization and driver productivity with minimum overtime usage.
7. Other responsibilities as assigned by the executive director.

BOOKKEEPER: Complete responsibility for management of business and financial records within the guidelines and policies set forth by the executive director.

Minimum Educational and/or Experience Qualifications: High school diploma plus basic business administration college courses (Accounting I & II plus Management) or three years' experience in a related business activity with a general ledger accrual accounting system.

Specific Responsibilities:

1. Maintain all general ledger, income, and expense accounts in accordance with good accounting procedures.
2. Maintain the payroll accounts and records in accordance with good accounting procedures and also in compliance with all federal, state and city regulations. Issue payroll checks as required.
3. Prepare for presentation all statistical reporting required.
4. Prepare budget reports.
5. Control spending through the system of purchase orders.
6. Issue agency billings and follow up on this collection.
7. Assist in negotiations and enforcing of agency contracts.
8. Prepare accounts payable checks in accordance with good accounting procedures.
9. Maintain personnel records for all employees.
10. Maintain property records on all vehicles, furniture and fixtures, and other assets as required.
11. Assist executive director in budget preparation.

12. Other responsibilities as assigned by the executive director.

SECRETARY

Minimum Educational and/or Experience Qualifications: A high school graduate with three years of experience in related field and possessing good, accurate, shorthand (60 wpm) and typing (60 wpm) experience, a basic knowledge of bookkeeping, and the ability to meet people and converse with them.

Special Responsibilities:
1. Arrange the schedule of the executive director so that his/her contacts with other segments of the business are prompt and prepared.
2. Open and distribute the mail and prepare routine letters for the signature of the executive director and other staff.
3. Maintain telephone communications for the office.
4. Typing and shorthand of correspondence and reports of the executive director and other staff.
5. Other responsibilities as assigned by the executive director.

DISPATCHER: The coordination of an efficient transportation system for the disabled and disadvantaged within the guidelines set forth by the executive director.

Minimum Educational and/or Experience Qualifications: High school graduation and two years of dispatching experience; or any equivalent combination of acceptable training and experience which shall have provided the knowledge, skills, and abilities necessary for the efficient performance of assigned duties. Employee should have some knowledge of vehicle maintenance needs; also the operation of two-way radios in the receipt and transmission of messages and dispatching vehicles.

Special Responsibilities:
1. Assign vehicles and drivers on a daily basis so the needs of the clients are met promptly and efficiently.
2. Coordinate transportation needs of contracting agencies and clients.
3. Review drivers' records and payroll records and forward them on a timely basis.
4. Maintain proper dispatch records.
5. Compile data, including but not limited to vehicle hours expended on contracting agencies, number of trips, number of miles, etc.
6. Other responsibilities as assigned by the transportation manager or executive director.

CALL TAKER/SCHEDULER: To answer all requests for transportation services and maintain appropriate records for each call. To provide information about the service, respond to complaints, and assist in scheduling trips if coordinated vehicle operations are part of the project.

Minimum Educational and/or Experience Qualifications: Applicant must have a high school degree or equivalent, must be able to maintain accurate records and files, and be able to effectively communicate orally and in writing with users and staff; must have an agreeable personality and be interested in working with handicapped and elderly individuals.

Specific Responsibilities:
1. Take phone calls requesting transportation services.
2. Complete request logs, including name, address, date and time service is needed, and destination for each trip.
3. Respond to requests according to services provided by the project. Either provide information, arrange trips with other agencies, or relay information to the vehicle dispatchers.
4. Maintain a current listing of people using the service. Keep accurate records about ridership information requests.
5. All other tasks as assigned by the transportation manager.

DRIVER: Transport handicapped and disadvantaged persons at the direction of the dispatcher or supervisor.

Minimum Educational and/or Experience Qualifications: High school diploma or equivalent; valid driver's license in good standing; no physical or mental limitations that prevents competent operation of a motor vehicle or providing physical assistance to any rider who requires or requests it. Must be knowledgeable of the geographical layout of the county. Must successfully complete an emergency care course within the first six months of full-time employment. Must be bondable.

Specific Responsibilities:
1. Be prompt, dependable and courteous at all times.
2. Be able to respond intelligently to emergency situations in regard to both the vehicle and the client.
3. Inspect the vehicle at the beginning and end of each day.
4. Maintain neat, accurate, and complete records of both operations and time.
5. Other responsibilities as assigned by the dispatcher or the transportation manager.

MAINTENANCE MANAGER/MECHANIC: Responsible for performance of the maintenance program and for keeping all vehicles in good operational order, under the overall supervision of the director.

Minimum Educational and/or Experience Qualifications: A degree from an accredited technical training

program and a minimum of two years' experience supervising mechanics and maintaining a fleet of vehicles.

Specific Responsibilities:

1. Supervise all other mechanics, mechanics assistants, or other maintenance department personnel.
2. Develop and implement all maintenance programs, including inspections, routine replacement, and repair.
3. Arrange for all outside maintenance repair work.
4. Order parts and supplies, particularly oil and gas.
5. Assist in determining budget and vehicle replacement schedule.
6. Other duties/responsibilities assigned by the transportation manager.

APPENDIX B: Sample Contract for the Development of an Operations Clearinghouse

Definitions

As used in this agreement, the following terms and phrases shall have the following meanings:

Participation Agency shall mean a human service agency, either a provider or purchaser agency, which agrees to participate in the program.

Provider Agency shall mean a participating agency, which agrees to make its vehicles available for use in the program and the coordinated transportation system.

Purchasing Agency shall mean a participating agency, which purchases available transportation services for its clients from provider agencies.

Lead Agency shall mean Coordinated Transportation, Inc.

Human Service Transportation System shall mean all participating agencies and human service vehicles, their existing management and support services, methods and modes of operation, routing and scheduling activities, and service areas.

Policy Board shall mean the organization composed of representatives of all participating agencies and representatives of the lead agency which shall be responsible for developing and implementing overall policy coordination for the program.

Clients shall mean those persons served by participating provider agencies through the human service transportation systems.

Potential Clients shall mean those persons not presently served by participating agency transportation services, but which may be served by transportation services under the program.

Staff shall mean the personnel of the lead agency responsible for the operation of the coordination of human service transportation through the administration of the program.

Service Area shall mean the geographic location and areas of coverage of a provider agency's human service vehicles.

Agreement Between Coordination Transportation and Human Service Agency

I. PREAMBLE

This agreement, as set forth herein between Coordinated Transportation, Inc. (CTI) as lead agency and *Human Service Agency (HSA),* as a participating provider or purchaser agency, represents a mutual understanding and recognition on behalf of both contractual parties of existing deficiencies, and duplication in the present system of human service transportation within the central state transportation service area. This agreement further represents a commitment of both parties to (1) cooperatively undertake the task of correcting existing deficiencies within the present human service transportation sys-

tem, (2) to provide for a greater degree of coordination and efficient utilization of human service vehicles, (3) to achieve a more effective method of providing transportation to existing and potential clients with the total amount of financial, physical and human resources available, (4) cooperate with one another, as well as other participating agencies, in the development of more cost effective means and methods of operating and maintaining human service vehicles, (5) to work jointly with other participating agencies to develop and provide for centralized support and management services, including, but not necessarily limited to, vehicle maintenance, coordinated purchasing systems, coordinated billing and accounting procedures, and similar management functions, and (6) to develop organizational and institutional frameworks with other participating agencies to provide overall policy coordination and development, as well as to ensure efficient day-to-day operation of a coordinated human service transportation network.

II. GENERAL

BE IT AGREED THAT:

A. CTI as the lead agency shall:

1. Be responsible for administration of the program under the overall policy supervision of the Policy Board composed of all participating agencies and a CTI representative.

2. Be responsible for the data collection and monitoring of coordination activities undertaken, and shall be accountable for proper administration and management of the program.

3. Cooperate with HSA and the policy Board in the setting of overall policy in achieving the goals and objectives of the program as outlined in CTI's charter.

4. Provide a representative to the Policy Board, who shall act as non-voting chairperson for the Policy Board.

5. Work with HSA, the Board, and all participating agencies in the determination of the methods and means of staff operation and staff administration in relation to specific coordination activities undertaken in the program.

BE IT AGREED THAT:

B. HSA, as the participant provider agency shall:

1. Work with CTI, its staff, the Policy Board, and all other participant agencies in achieving the goals and objectives of human service transportation coordination.

2. Provide a representative to the Policy Board; such member shall hold voting privileges as a representative of a participating agency.

3. HSA agrees to maintain its present level of support, financial, human, and physical for the level of transportation services it provides, during the contract period. Specifically, these resources include:

(a) Vehicles

No.	Year	Model	Seating Capacity
1	1976	Chevrolet Van	10 Passenger
___	___	_____	_____
___	___	_____	_____
___	___	_____	_____

(b) Financial Support

Vehicle Maintenance and Support $9,315.00.

4. HSA shall also purchase passenger service (seating capacity or vehicle time) from participating provider agencies to the extent that such service is available and to the extent that such service meets the needs of its clients. The price of such service shall be reasonable and equitable in relation to operation and support costs, as determined by the Policy Board. HSA also agrees that, as its clients transportation needs increase, the preferable method of meeting such needs is one of obtaining passenger service from other provider agencies.

5. HSA anticipates that it will purchase passenger service up to a maximum of $5,000 per year.

6. It is agreed by all parties that the provider agency must first meet the transportation needs of its own clients.

7. HSA agrees to sell passenger service (seating and vehicle time) to participating agencies to the extent that it does not substantially reduce or modify service to the clients of the vehicle owner, as determined by the owner agency.

III. EFFECT

This agreement shall take effect upon the approved executed date. The duration of this contract shall be for one year.

IV. TERMINATION

This agreement may be terminated at any time by either party upon written notice.

VI. APPROVAL

Executed this ____ day of _____ 1977, by:

Coordinated Transportation, Inc.	Human Services Agency
_____ (signature)	_____ (signature)
_____ (date)	_____ (date)

APPENDIX C: Sample Contract for the Development of a Total Coordination Project

Agreement Between Human Service Agency and Coordinated Transportation, Inc., a Not-for-Profit Corporation

The AGREEMENT is entered by and between _____ _____ (hereinafter referred to as the "Agency") and Coordinated Transportation, Inc. (hereinafter referred to as the "Company") to become effective on _____. The purpose of this Agreement is to provide specialized transportation for various programs and individuals affiliated with the Agency.

For and in consideration of the mutual promises herein expressed the parties agree as follows:

1. Service. The Company will provide a specialized transportation service to said Agency for programs and eligible individuals and/or clients of said Agency. Said service to include all vehicles, drivers, dispatch, vehicle maintenance (including fuel and lubricants) and any and all other components necessary to provide a full service transportation system for the needs of the Agency. Attachment A details what services are to be provided (not included in this sample).

2. Rates. Agency will reimburse the Company for the transportation services rendered to the Agency, as herein provided, based on the following.

(1) Transportation between the hours 6:01 a.m. and 6:00 p.m. @ $10.00 per vehicle hour, $1.00 per vehicle mile, or $5.00 per passenger trip.

(2) Pre-scheduled layover of vehicles @ $5.00 per vehicle hour.

The rate to be used will be mutually agreed upon by both parties prior to the provision of service.

3. Billing. The Company will submit to the Agency, on or before the tenth (10th) day of each month a statement, based on the rates set forth hereinabove for the cost of transportation services rendered to said Agency during the previous month.

If a client does not go on an authorized dispatched trip and the trip was not cancelled with adequate notice, the Agency will be billed for the vehicle time involved. "Adequate notice" is defined as three hours in advance.

4. Reimbursement. Agency agrees to reimburse the Company for transportation services rendered within 30 days of the date of the monthly statement submitted by the Company. A late charge computed at a rate of 1% of the outstanding balance will be charged to the Agency if not paid within this time period.

5. Books, Records and Reports

The Company agrees to keep and maintain good and proper business records of all services and charges provided for under this Agreement.

All books and records maintained by the Company pertaining to this agreement will be open and made available to the agency or its representatives, for purposes of inspection or audit during normal business hours, and upon reasonable notice.

In addition to, and as part of, its monthly statement, the Company will provide Agency with a report which will include, but is not limited to, the total number of vehicle hours provided to said Agency, total miles of operation attributed to the Agency under the Contract and number of Agency clients transported by the Company. Other information such as origins and destinations of trips may be provided upon request to said Agency.

6. Eligibility. Agency agrees to determine eligibility of all individuals utilizing Company transportation.

7. Notice of Transportation Needs. Agency agrees to provide the Company at least 24 hours in advance, with the time and location of individual pick-ups and points of discharge as well as the clients name and special transportation needs (e.g. vans with wheelchair lift) and also when a vehicle will be required to layover at a designated location.

Agency further agrees to provide the Company with adequate notice of cancellation of pre-scheduled transportation. Adequate notice is defined as 30 minutes.

When possible Agency will provide the Company with a telephone number where client can be reached.

8. Special Provisions. The Agency agrees to provide 1/2 hour sensitivity training every six months for the term of this contract to company drivers and dispatchers, such training to sensitize the drivers to the needs of Agency staff and clients.

9. Personnel. The Company agrees that all personnel employed by the Company in the performance of this Contract will be properly trained and supervised.

The Company assumes responsibility for all personnel matters relating to its performance under this Contract. All personnel issues are to be referred directly to the Office of the Executive Director of the Company.

10. Non-Discrimination. All services provided under this Contract will be in compliance with Title VI of the Civil Rights Act of 1964 and H.E.W. regulations promulgated under that statute, which provide in general that no beneficiary or recipient of the services provided by this Contract, shall be discriminated against on the basis of race, color, creed, national origin, age, ethnic background, or sex.

11. Insurance. The company agrees to provide and maintain adequate insurance coverage as required by state law or regulation for the protection of its fleet, riders, and personnel. A copy of the Company certificate of insurance will be furnished to Agency upon request.

All insurance claims or inquiries shall be handled directly through the Company.

12. Conditional Waiver. Any liability on the part of the Company to adequately or properly perform this contract based on any of the following events or occurrences is hereby waived by the Agency:

a) Adverse weather conditions that would create hazadous driving conditions;

b) Unforeseen vehicle shortage;

c) Shortages of fuels or lubricants beyond control of the Company;

d) Interruptions to service caused by labor disputes;

e) War, riot, revolution, act of God, or other unforeseen circumstances whether of the class of causes hereinbefore enumerated or not.

13. Modification and Termination. Any modifications or amendments to this Agreement shall be in writing and when signed by both parties shall be made a part thereof. This Agreement may be terminated by either party upon 30 days written notice to the other.

This Agreement is entered into this _____ day of _____, 19__

AGENCY:

BY: _____

COMPANY:

BY: _____

COMPANY:

BY: _____

Lease Agreement

This Agreement, by and between _____ _____ of _____ _____, hereinafter referred to as the "Lessor", and Coordinated Transportation, Inc. hereinafter referred to as the "Lessee", shall govern certain activities carried out by the parties hereto as defined herewith:

The term of this Agreement is from _____ _____ to _____.

1. Lessor agrees to let, rent and lease the vehicles listed in Attachment A to Lessee for the consideration of $1.00 for the term of this Agreement. Lessee agrees to receive, and take possession of said equipment.

2. Lessee is responsible for insurance of all vehicle(s) listed in Attachment A in the minimum amounts of $100,000.00 each person and $300,000.00 each occurrence bodily injury liability, $50,000.00 physical damage; $10,000.00 uninsured motorist; and $10,000.00 comprehensive and collision coverage. Lessee shall hold Lessor harmless from any claim, tort, suit or petition brought by any party in regards to operation, maintenance, or insurance relating to said vehicle(s) while said vehicle(s) are under the control of Lessee.

3. Lessee shall maintain vehicles listed in Attachment A (not included in this sample) and shall be responsible for all expenses incurred regarding maintenance of said vehicle(s).

4. Lessee shall maintain records relating to use of vehicles listed in Attachment A, such as: mileage, ridership and operating expenses. Lessee may place an insignia, motto and phone number of any vehicle so listed in Attachment A, providing that each vehicle upon termination of this Agreement, shall be returned to Lessor with the body style and paint scheme which that vehicle had at the effective date of this Agreement.

It is agreed that each vehicle leased hereunder may be used in ride-sharing and time-sharing modes, with the understanding that such service shall act in all cases to reduce Lessor's expenditures for transportation.

5. Either party may terminate this Agreement by giving 60 days written notice to the other party. This Agreement may be amended at any time. Such amendments being written and attached to this document, and signed by the duly authorized representatives of each party.

6. This Agreement, with Attachments, constitutes the entire Agreement by and between these two parties regarding vehicle leases, and is to take effect as

soon as it is signed by the duly authorized representatives of both parties hereto.

_____ (signature)	_____ (signature)
_____ (date)	_____ (date)

Letter of Agreement

_____
Date

_____ agrees to purchase transportation services as outlined in Attachment A (not included in this sample) from Coordinated Transportation, Inc. (CTI).

CTI agrees to provide adequate insurance coverage, for the protection of its fleet, riders and personnel. CTI liability to perform services is waived if such service cannot be provided because of adverse weather, unforeseen vehicle shortage, strike, war, riot, revolution, act of God or other unforeseen circumstance.

_____ will be billed by CTI within 10 days of the first day of the month following the month in which service is rendered at the rate of $10.00 per vehicle hour, $1.00 per vehicle mile of $5.00 per vehicle trip. The method of billing will be mutually agreed to before the trip.

_____ _____

APPENDIX D: Sample Contract for the Development of a Contract Maintenance Program

Contract Agreement

This agreement is made on this ____ day of _____ 19__, between PUBLIC TRANSIT System, (hereinafter called the PTS) and Coordinated Transportation, Inc. (hereinafter called Contract Coordinator).

Because the PTS has the facilities and equipment to perform routine and corrective vehicle maintenance and the Contract Coordinator is responsible for the coordination and maintenance of the vehicles of _____, these parties are mutually agreed that the PTS be retained by the Contract Coordinator to perform those duties and functions contained in the following provisions.

Therefore, in consideration of their mutual desires and the following provisions, the parties agree as follows:

1. The PTS is hereby retained by the Contract Coordinator for the term of 12,000 service miles or a period not to exceed one year, whichever event first occurs. During this period, it is mutually agreed that the PTS maintenance facility shall be available for vehicle contract maintenance and repair during the hours of normal facility operation and by mutually agreeable appointment as arranged by the parties.

2. The Contract Coordinator agrees to pay the PTS at the rate of $110.50 per contract period per vehicle under 6,000 pounds G.V.W. and at the rate of $137.50 per contract per vehicle in the 6,000 to 10,000 G.V.W. range. All contract charges are due and payable at the commencement of the contract period. These contract charges are based upon the itemized cost breakdown of routine maintenance as included in the addendum one (1) to the text of this contract.

3. The Contract Coordinator will be responsible for the delivery of vehicles to the PTS maintenance facility for scheduled maintenance under this routine maintenance contract. If the Contract Coordinator fails to deliver the vehicle after due notification of scheduled service date or expiration of a mileage interval as set out in addendum one to this contract, the PTS will not refund any portion of the retainer agreed to in paragraph 2 of this contract.

4. The Contract Coordinator will pay for the actual and reasonable cost of parts and for labor for all work performed by the PTS that is not covered under routine maintenance agreement. Those actual and reasonable charges will be assessed in accordance with the itemized labor cost and part costs included in addendum two to the text of this contract.

5. Upon request by the Contract Coordinator, the PTS will provide written estimates of repair work desired by the Contract Coordinator and not covered under the routine maintenance agreement portion of this contract. Invoices shall be submitted monthly by the PTS and shall be payable upon receipt for this repair work and parts. Invoices will be certified as correct and proper by the PTS Director and shall contain a description of work performed and a description of additional recommended maintenance.

6. The PTS guarantees that all work performed by it will adhere to standard maintenance techniques and correct installation procedures. Should any part or parts fail due to improper installations, the PTS will replace those part or parts at no charge to the Contract Coordinator. However, the PTS assumes no express or implied warranty for any damage to persons or property that results from a defect in the part itself or instructions as to its installation.

7. When necessary, the PTS is permitted to enter into lower tier subcontracts under this agreement. The PTS will use due care in the choice of persons with whom it enters into these lower tier subcontracts, but will assume no express or implied warranty or responsibility for damage to persons or property resulting from negligent acts of these subcontractors.

8. The PTS shall maintain a complete set of records for all routine and corrective maintenance performed and vehicle owners will be provided copies of all invoices of parts and labor and descriptions of services performed in all maintenance work.

9. The Contract Coordinator may elect any mileage interval contained in addendum one to this contract as the starting point for a particular vehicle's maintenance; however, in no case will the contract maintenance exceed those services as contained in addendum one.

10. The PTS shall offer further corrective maintenance services to any vehicles covered by this contract at a reduced rate and in accord with those costs listed in addendum two to the text of this contract.

11. Upon delivery of the vehicle by the Contract Coordinator and/or his agents, the PTS will return drivers to their place of business.

12. The PTS shall provide emergency road service to vehicles covered by this contract within the specified distances and time limits and costs as outlined in addendum two of this contract.

13. The PTS shall maintain proper and adequate insurance coverage on all vehicles covered by this contract; this insurance shall be effective while these vehicles are at the PTS maintenance facility site and/or being operated by PTS employees. The insurance shall include coverage of damage to vehicles caused by gross negligence on the part of PTS employees.

14. This agreement may be terminated by either party upon thirty days written notice. Prepaid contract charges will be prorated through the end of the month in which written notice is received. Should the Contract Coordinator desire to reduce the number of vehicles covered by this contract, he may do so upon thirty days written notice to the PTS Project Director. The PTS will return to the Contract Coordinator that prorated portion of the prepaid contract price based upon the number of remaining months in the term of the contract. The starting date for computation is thirty days after the PTS receives notice from the Contract Coordinator.

	Director, Public Transit System
Witness	Contract Coordinator

Addendum One (1)

	Vehicle Under 6,000 GVW	Vehicle Over 6,000 GVW
3,000 Mile Service.		
1. Lubrication and General Maintenance		
(a) Chassis Lubrication	$ 2.50	$ 3.00
(b) Fluid levels check	NC	NC
(c) Engine Oil Change (includes 5 qts. oil)	4.50	5.00
(d) Cooling System Check (includes pressure cap and system pressure check anti-freeze/coolant, related belts and hoses check)	NC	NC
2. Safety Maintenance		
(a) Tires and Wheels check		
(b) Exhaust System check		
(c) Engine Drive Belts check		
(d) Suspension and Steering check		
(e) Disc Brakes check (if drum brakes includes pedal level and hydraulic leak check)	2.00	2.00
3. Emission Control Maintenance		
(a) Carburetor and Hoses check		
(b) Engine Idle Speed Adjustment		
(c) Carburetor Mounting Torque	1.50	2.50
6,000 Mile Service.		
1. Lubrication and General Maintenance		
(a) Includes items (a) thru (d) of 3,000 mile service	7.00	8.00
(b) Engine Oil Filter Change	5.00	5.00
2. Safety Maintenance		
(a) Includes items (a) thru (e) of 3,000 mile service	2.00	2.00
(b) Drum Brakes and Parking Brake check	$ 2.00	$ 7.00
(c) Throttle Linkage check	NC	NC
(d) Underbody check	NC	NC
3. Emission Control Maintenance		
(a) Includes items (a) thru (c) of 3,000 mile service	1.50	2.50
(b) Manifold Heat Valve check	NC	NC
(c) Engine Timing and Dwell Angle check	5.00	5.00
(d) Engine Idle Mixture adjust	NC	NC
(e) Emission Control System check	NC	NC
(f) Spark Plug and Ignition Coil Wires check (visual)	NC	NC
9,000 Mile Service.		
1. Lubrication and General Maintenance		
(a) Includes items (a) thru (d) of 3,000 mile service	7.00	8.00
2. Safety Maintenance		
(a) Includes items (a) thru (e) of 3,000 mile service	2.00	2.00
3. Emission Control Maintenance		
(a) Includes items (a) thru (c) of 3,000 mile service	1.50	2.50
12,000 Mile Service.		
1. Lubrication and General Maintenance		
(a) Includes items (a) and (b) of 6,000 Mile Service	12.00	13.00
(b) Wheel Bearing repack	9.00	12.00
2. Safety Maintenance		
(a) Includes items (a) thru (d) of 6,000 mile service	4.00	9.00
3. Emission Control Maintenance		
(a) Includes items (a) thru (f) of 6,000 mile service	$ 6.50	$ 7.50
(b) Spark Plug replacement	15.00	20.00
(c) Ignition points, condenser and rotor replacement	10.00	10.00
(d) Fuel Filter replacement	3.50	3.50
(e) Air Cleaner Element replacement	5.00	6.00
(f) PCV Valve replacement	2.00	2.00
	110.50	137.50

Addendum Two (2)

The PTS has the facilities and equipment to perform passenger and light truck repairs normally available at private vehicle maintenance garages in the service area.

All work will be done on an appointment basis.

The PTS will adhere to the following vehicle maintenance priorities:

1. PUBLIC TRANSIT Vehicles
2. Vehicles under routine maintenance contract.
3. Human Service Agency vehicles not under contract.

Service Rates

1. *Parts*—the PTS will make vehicle replacement parts available on a cost plus 20% basis. Replacement parts furnished by contract and non-contract agencies will be installed for labor charges only. The PTS will assume no warranty liability on parts furnished by non-PTS sources. (Replacement parts will be available to contract agencies on a cost plus 15% basis.)
2. *Labor*—Labor will be charged in accordance with the current flat rate manual job time estimates or actual time involved, whichever is less.
   The hourly labor rate will be set at $10.00.
   ($9.00 for Agencies under Maintenance Contract)
3. *Job Rate*—Labor for certain jobs will be charged at the following prices:

	Under 6,000 GVW	Over 6,000–10,000 GVW
Oil Change, with oil (No Filter)	$4.50	$ 5.00
Oil Change (W/Filter)	$9.50	$10.00
Lubrication	$2.50	$ 3.00
Wheel Bearing Packing	$9.00	$12.00
Flush Cooling System	$2.00	$ 2.00
Tune Up (Labor Only)	$7.50	$ 7.50
Battery Charge	$2.00	$ 2.00
Automatic Transmission Filter (Labor Only)	$7.50	$ 8.00
Shock Absorbers (Per Unit, Labor Only)	$2.50	$ 3.00

Any service function not listed in the flat rate manual or in the preceding job rates and taking more than 15 minutes will be charged at a rate agreed upon by the mechanic, PTS Director and owner agency.

The PTS will not, except with the written approval of an authorized representative of the owner agency, make any repairs in addition to the original request by the owner agency or as indicated in writing by the estimate of repairs.

In cases where restoration of general vehicle subsystems is requested by the owner agency, i.e., cooling system, fuel system, etc. the PTS shall perform only such maintenance and install only such parts as required to restore the system to normal operating efficiency.

The PTS will maintain an accurate and complete maintenance file on all vehicles serviced.

The PTS will provide emergency road service to vehicles under contract. The service will be available 8:00 a.m. to 5:00 p.m. Monday through Friday. Emergency road service does not include towing, tire chain installation or tire repair.

In no case will the road service time exceed one-half hour (travel time excluded) and will be charged at the following rates.

Mileage (One Way)	Charge
0–5	$ 5.00
5–10	$ 7.50
10–15	$10.00
15–20	$12.50
20–25	$15.00

Road service billing will include mechanics odometer readings before leaving shop and at site of breakdown.

APPENDIX E: Examples of the Use of Agency Billing Rates

Characteristics of a Hypothetical Coordination Project

Number of Vehicles: 5

Annual Vehicle Hours: 10,400

Annual Operating Budget: $111,680

Annual Passenger Trips: 20,000

Example 1. Using the cost data presented in Table 3, assume that the system carries 20,000 one-way trips annually with 10,400 annual vehicle hours. Find the productivity, cost per trip, and cost per vehicle hour.

$$1.\ \text{Productivity} = \frac{\text{Trips}}{\text{Vehicle Hours}}$$

$$= \frac{20{,}000}{10{,}400} = 1.92\ \text{Trips/Vehicle Hour}$$

$$2.\ \text{Cost per Trip} = \frac{\text{Annual Operating Expense}}{\text{Annual Trips}}$$

$$= \frac{\$111{,}680}{20{,}000} = \$5.59/\text{Trip}$$

$$3.\ \text{Cost per Vehicle hour} = \frac{\text{Annual Operating Expense}}{\text{Vehicle Hours}}$$

$$= \frac{\$111{,}680}{10{,}400} = \$10.74/\text{Vehicle Hour}$$

Example 2. Now assume that the productivity has increased to 2.5 trips per vehicle hour without increasing the annual operating expenses and vehicle hours. Find the annual trips and cost per trip.

$$1.\ \text{Annual Trips} = (\text{Annual Vehicle Hours}) \times (\text{Productivity})$$

$$= (10{,}400\ \text{Vehicle Hours}) \times (2.5) = 26{,}000\ \text{Trips}$$

$$2.\ \text{Cost/Trip} = \frac{\text{Annual Operating Expense}}{\text{Annual Trips}}$$

$$= \frac{\$111{,}680}{26{,}000} = \$4.29/\text{Trip}$$

Thus, the increase in productivity from 1.92 to 2.5 trips per vehicle hour increased the yearly trips from 20,000 to 26,000 and decreased the cost per trip from $5.59 to $4.29.

Example 3. Assume that a system operates 10,400 vehicle hours per year with an annual operating expense of $111,680. The utilization ratio is 0.7. Find the hourly billing rate.

$$1.\ \text{Hourly Rate} = \frac{\text{Annual Operating Expense}}{(\text{Annual Vehicle Hours}) \times (\text{Utilization Ratio})}$$

$$= \frac{\$111{,}680}{10{,}400 \times 0.7} = \frac{\$111{,}680}{7{,}280} = \$15.34/\text{Hr.}$$

Example 4. Assume that the system operates under the same conditions as above, but does not employ the utilization ratio when calculating the hourly rate. How much yearly deficit will be required to compensate for this oversight?

1. Annual Operating Expense:	$111,680
2. Annual Vehicle Hours:	10,400
3. Utilization Ratio:	0.7
4. Cost per Vehicle Hour:	$10.74

With a utilization ratio of 0.7 the agency can only bill for 7,280 hours which is the total hours of service provided to purchaser agencies. Thus:

5. Revenue = $10.74/Hour × 7,280 Vehicle Hours = $78,187

The revenue shortfall or deficit is then $111,680 − $78,187 = $33,493 per year.

Example 5. Determine the mileage billing rate under the following assumptions:

Annual Operating Expense:	$111,680
Annual Vehicle Hours:	10,400
Passenger Service Miles:	72,800

$$1.\ \text{Mileage Rate} = \frac{\text{Annual Operating Expense}}{\text{Passenger Service Miles}}$$

$$= \frac{\$111{,}680}{72{,}800} = \$1.53/\text{Mile}$$

Example 6. Now assume that the agency has determined its mileage billing rate at $1.53/mile—it provides 10,400 vehicle hours with a utilization ratio of 0.7 and an annual operating expense of $111,680. The agency will operate at an average productivity of 2.5. The estimated passenger service miles are 72,800. Find the annual one-way trips and calculate the cost per trip by using the mileage rate and check this with the trip rate method.

1. Annual Trips = (Annual Vehicle Hours) × (Productivity)

   = (10,400 Vehicle Hours) × (2.5) Pass. Trips/Hr.

   = 26,000 Trips

2. Cost per Trip using Mileage Rate:

$$\text{Mileage per Trip} = \frac{\text{Annual Passenger Service Miles}}{\text{Annual Trips}}$$

$$= \frac{72{,}800}{26{,}000} = 2.8 \text{ Miles/Trip}$$

$$\text{Cost per Trip} = (\text{Mileage Rate}) \times (\text{Mileage per Trip})$$

$$= (\$1.53/\text{Mile}) \times (2.8) = \$4.30/\text{Trip}$$

3. Check Cost per Trip using Trip Rate Method:

$$\text{Cost per Trip} = \frac{\text{Annual Operating Expense}}{\text{Annual Trips}}$$

$$= \frac{\$111{,}680}{26{,}000 \text{ Trips}} = \$4.30/\text{Trip}$$

The solutions to parts 2 and 3 check; therefore, the agency has accurately calculated the mileage rate and was successful in transforming the mileage rate into a trip rate.

GLOSSARY OF TERMS

Accessibility—A concept used in transportation planning to describe the ease with which an individual has an opportunity to participate in an activity. The more accessible the activity, the fewer travel barriers must be overcome to reach the activity.

Administration—The functions that are necessary to support vehicle operations and maintenance, including supervision, information and referral, billing and program accountability, record keeping, planning and marketing, driver training, and purchasing.

Advance-Notice Service—A demand-responsive transportation service by which clients make their trip requests at a designated period, usually at least 24 hours prior to their actual service need.

Avoidable Costs—Those current agency transportation costs that will be transferred to a coordination project.

Demand-Responsive Service—A mode of transportation designed to carry riders to specific destinations upon request.

Direct Costs—The costs incurred by the transportation program resulting from vehicle operations and maintenance.

Dispatching—The direct control of vehicle operations as the service is being provided.

Group Trip—A service to bring individuals to one common destination, such as Head Start or sheltered workshop employment, usually on a regularly scheduled basis.

Idle Hour (IDH)—The time when the vehicle is parked during the day and no driver is on duty to transport clients.

Immediate-Response Service—A demand-responsive transportation system by which service is provided immediately upon request.

Individual Trip—A one-way vehicle trip providing service for one individual client.

In-Kind Services—Non-cash gifts and services, such as labor, vehicle use, and office space, used to support a transportation program.

Interim Accessible Service—A program that guarantees accessible services until program accessibility is achieved.

Level of Service—The convenience, comfort, safety, and utility of a system.

Maintenance—The functions that are related to taking care of the vehicles and keeping them in proper condition, composed of storage, routine and preventive maintenance, major repairs, and maintenance-related parts purchasing.

Metropolitan Planning Organization (MPO)—The organization that is charged with planning a metropolitan area's mass transportation program and comprehensive highway program. An MPO is recognized by UMTA and FHWA for transportation planning programs in metropolitan areas with populations of 50,000 or more.

Paratransit—Those forms of passenger transportation that are distinct from conventional transit (scheduled bus and rail) and can operate over the highway and street systems. Types of paratransit include dial-a-ride, shared taxicab service, jitneys, subscription bus, car pools, van pools, and short-term car pools, either company-owned or rental, each of which has characteristics suitable for different types of travel.

Passenger Service Hour (PSH)—The actual hours when vehicles are being utilized to transport clients.

Passenger Trip (PT)—A one-way trip; that is, one person traveling in one direction from origin to destination.

Prescheduled Service—A general category of advance-notice trip scheduling. The term implies service that is regularly scheduled and whose demand is known well in advance.

Preventive Maintenance—Routine servicing and maintenance procedures required to ensure the continued operation of a vehicle.

Primary Service—Those services that are the major agency programs as mandated by the appropriate legislative program.

Program Accessibility—According to Section 504, each federal recipient must operate a service that, when viewed in its entirety, is accessible to handicapped persons.

Ride Sharing—A mode of transportation that provides for the sharing of a vehicle by clients of two or more agencies, thus allowing for greater cost efficiency and improved vehicle utilization.

Routing and Scheduling—The process by which trips are assigned to specific vehicles such that routes and time schedules can be developed in advance of service delivery.

Shared-Ride Taxi—A type of demand-responsive service in which taxis are allowed by the regulating authorities to carry at any one time several unrelated passengers with different origins and destinations.

Special Efforts—Public mass transportation facilities and services that can effectively be utilized by elderly and handicapped persons pursuant to Section 16 of the Urban Mass Transportation Act and Section 165(b) of the Federal-Aid Highway Act of 1973.

Subscription Service—Service provided through advance reservations for regular trips over a specified period of time.

Support Costs—Those costs incurred by a transportation program that do not result from vehicle maintenance or operations, including administrative salaries, office rentals.

Target Population—Those persons eligible to receive the benefits of the programs of each participating agency.

Time Sharing—A mode of transportation in which a vehicle's time is shared by two or more agencies. Each agency utilizes the amount of service it requires, allowing its unutilized vehicle time to be purchased by another agency. This system reduces the service costs incurred by unutilized vehicles.

Transportation Authority—A local or regional organization with responsibility for planning, funding, and sometimes operating public transportation services in an area.

Transportation Coordination—A cooperative arrangement among human service agencies providing transportation, and public/private transit operators, aimed at realizing increased transportation benefits through the joint operation of one or more transportation functions.

Transportation-Handicapped—The condition whereby an individual, by reason of illness, injury, age, congenital malfunction, or other permanent or temporary incapacity or disability, is unable without special facilities or special planning or design to utilize mass transportation facilities as effectively as a person who is not so affected.

Transportation Implementation Plan (TIP)—A staged, multi-year program of transportation improvement projects consistent with the proposed areawide transportation plan in metropolitan areas. It identifies transportation improvements, indicates the area's priorities, groups improvements into staging periods, includes realistic estimates of total costs and revenues for the program period, and describes how the projects were chosen from the transportation plan.

Transition Plan—A plan indicating how program accessibility will be achieved, including any interim accessible services required during the implementation period.

Transportation Provider—The agency, organization, or company that operates, manages, or is otherwise responsible for providing transportation services.

Transportation Purchaser—The agency, organization, or company that does not operate or manage any transportation services and therefore purchases transportation services from a provider agency.

Unavoidable Costs—Those agency transportation costs that cannot be transferred to a coordination project and will therefore continue to be borne by the agency.

Unutilized Vehicle Hours (UVH)—The hours when vehicles are not carrying passengers but a driver is on duty.

Vehicle Capacity—The number of passenger seats and the number of wheelchair tie-down spaces in a vehicle.

Vehicle Hour (VH)—The sum total of passenger service hours and unutilized vehicle hours.

Vehicle Operations—The functions that are related to carrying passengers, composed of accepting trip requests, routing, scheduling, and dispatching vehicles.

Wheelchair Transport Service—Private for-profit companies that provide appropriate transportation services for those individuals using wheelchairs.

Glossary of Selected Federal Programs Supporting Transportation Services

Comprehensive Employment and Training Act of 1973 (CETA)—Provides job training and employment opportunities for economically disadvantaged, unemployed, or underemployed persons, and also funds for transportation to training centers, work sites, educational and counseling centers.

Community Development Block Grants (CDBG)—A consolidation of several previous HUD programs—urban renewal, Model Cities, etc.—into one comprehensive program that allows urban communities to develop and support activities that respond to their documented needs and that provide maximum assurance of funding continuity. Transportation services are supported if they expand and improve the quantity and quality of community services that are essential for sound community development.

Community Services Act of 1974—Authorizes the Community Services Administration to administer many of the programs formerly under the Office of Economic Opportunity. Title II provides funding for transportation services to enable low-income people to participate in community activities and to supplement other federal programs with transportation funds.

The Developmentally Disabled Assistance and Bill of Rights Act of 1975—This act is intended to assist states in developing and implementing a comprehensive and continuing plan for meeting the needs of persons who have a disability resulting from mental retardation, cerebral palsy, epilepsy, or other neurological condition that originates before age 18 and is a substantial handicap. Transportation services can be provided under this act to and from Developmental Disability services.

Federal-Aid Highway Act of 1973—Section 147 of this act authorizes funds for a Rural Highway Public Transportation Demonstration Program covering both capital and operating expenses for innovative transportation services provided by either public or nonprofit agencies for rural and small urban areas. It is jointly administered by the Federal Highway Administration (FHWA) and the Urban Mass Transportation Administration (UMTA).

Head Start—Title V of the Community Services Act of 1974 authorizes funds for transportation of economically disadvantaged children to Head Start centers.

Medicaid—Title XIX of the Social Security Act supports the Medicaid program, which seeks to enable those persons who cannot afford good medical care to receive high-quality care through a federally subsidized program. Funds are available to cover the cost of transportation to health facilities for Medicaid recipients.

Older Americans Act of 1965—Title III of this act assists states and local area agencies on aging in developing comprehensive and coordinated service systems for the elderly. Transportation is included as one of the services to be provided in a comprehensive service system. Title VII of the act supports nutrition programs for the elderly, including transportation to and from nutrition sites.

Rehabilitation Act of 1973—This act supports the provision of vocational rehabilitation services to persons with mental and physical handicaps through formula grants to the states. Transportation services are provided to rehabilitation services for eligible clients.

Section 504—Part of Title V of the Rehabilitation Act of 1973 states that handicapped people cannot be discriminated against under any program or activity receiving federal financial assistance solely by reason of their handicap.

Social Security Act

—*Title XIX*—See Medicaid.

—*Title XX*—Provides federal financial support for social services other than income maintenance provided to low-income individuals and families. Transportation services can be provided under Title XX as a support component of a primary service to improve service delivery or as a primary service to improve the self-sufficiency of low-income individuals.

Urban Mass Transportation Act of 1964

—*Section 3*—To the extent that Section 5 funds are unavailable or insufficient, this section provides discretionary funds to public agencies and private operators (through contracts with public agencies) to fund 80 percent of the cost of capital acquisitions, improvements to and expansion of public transit systems, and construction costs of maintenance facilities, bus garages, etc.

—*Section 5*—Provides formula matching funds to urbanized areas to cover up to 50 percent of operating cost deficits and 80 percent of the purchase of buses and bus-related equipment and facilities.

—*Section 6*—Funds the Services and Methods Demonstration Program for development, testing, and promotion of innovative and nationally relevant services and methods relating to public transportation in both urban and rural areas.

—*Section 8*—Provides planning assistance in the form of 80 percent grants to states and local public

agencies for transportation planning, engineering, design, and evaluation of urban mass transportation alternatives (replaces the former Section 9 Program).

—*Section 13(C)*—This section protects collective bargaining rights and assures that wages and working conditions will not be adversely affected by federally funded programs.

—*Section 15*—Defines the uniform reporting standards to which all UMTA-funded transportation programs must adhere. The information to be collected pertains to public mass transportation financial and operating information.

—*Section 16(b)(2)*—Provides money to each state by formula to help private, nonprofit organizations provide for the special transportation needs of elderly and handicapped persons that are currently not being met.

—*Section 18*—Provides money to states by formula to assist local public agencies, nonprofit organizations, and operators of public transportation services in the provision of public transportation services in rural and small urban areas. Provides 80 percent of the capital costs and 50 percent of the operating cost deficits of these projects.

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